EXHIBIT H

UNITED STATES DISTRICT COURT

DISTRICT OF NEW JERSEY

MDL NO. 16-2738(MAS)(RLS)

IN RE JOHNSON & JOHNSON TALCUM POWDER PRODUCTS MARKETING, SALES PRACTICES, AND PRODUCTS LIABILITY LITIGATION,	) DEPOSITION OF:) SHU-CHUN SU

TRANSCRIPT of the stenographic notes of the proceedings in the above-entitled matter, as taken by and before SANDRA A. ROBERTSON, a Certified Court Reporter and Notary Public of the State of New Jersey, held at THE HELDRICH HOTEL 10 Livingston Avenue, New Brunswick, New Jersey, on July 11, 2024, commencing at 9:13 a.m.

APPEARANCES:

DEAN OMAR BRANHAM SHIRLEY, LLP
BY: BENJAMIN BRALY, ESQUIRE
302 N. Market Street
Suite 300
Dallas, Texas 75202
(214) 722-5990
bbraly@dobslegal.com
Attorneys for the Plaintiff Kayme Clark

COHEN PLACITELLA ROTH, PC
BY: CHRISTOPHER M. PLACITELLA, ESQUIRE
127 Maple Avenue
Red Bank, New Jersey 07701
(888) 219-3599
cplacitella@cprlaw.com
Attorneys for the Plaintiffs

KING & SPALDING, LLP
BY: KEVIN HYNES, ESQUIRE
JOHN EWALD, ESQUIRE
1185 Avenue of the Americas
34th Floor
New York, New York 10036
(212) 556-2100
khynes@kslaw.com
Attorneys for the Defendant Johnson & Johnson

McCARTER & ENGLISH, LLP
BY: JOHN C. GARDE, ESQUIRE
Four Gateway Center
100 Mulberry Street
Newark, New Jersey 07102-4056
(973) 622-4444
jgarde@mccarter.com
Attorneys for the Defendant Johnson & Johnson

REMOTE
APPEARANCES:

BEASLEY, ALLEN, CROW, METHVIN, PORTIS & MILES, PC
BY: P. LEIGH O'DELL, ESQUIRE
MARGARET THOMPSON, ESQUIRE
218 Commerce Street
Montgomery, Alabama 36104
(334) 269-2343
leigh.odell@beasleyallen.com
Co-lead Counsel for the Plaintiffs

ASHCRAFT & GEREL
BY: MICHELLE A. PARFITT, ESQUIRE
8280 Willow Oaks Corporate Drive
Suite 600
Fairfax, Virginia 22031
703) 931-5500
mparfitt@ashcraft.com
Attorneys for the Plaintiffs

REILLY MCDEVITT & HENRICH, PC
BY: KEVIN KOTCH, ESQUIRE
3 Executive Campus
Suite 310
Cherry Hill, New Jersey 08002
(856) 317-7180
kkotch@rmh-law.com
Attorneys for the Defendant Personal Care Products Council

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YING SHI, Mandarin Interpreter,
after having been duly sworn to interpret when requested.
SHU-CHUN SU,
after having been duly sworn, testified in English as follows:

EXAMINATION

BY MR. BRALY:

Q. Good morning, Dr. Su. 09:13:43
A. Good morning. 09:13:44
Q. It's nice to meet you. 09:13:45
A. Nice to meet you too. Last time we chatted was last May. 09:13:48 09:13:50
Q. Right. You know, I've had a chance to read your publications to kind of study your career a little bit, and I know that you've done a lot for the microscopy community and for the science community. I appreciate your spending the time to be here with us. 09:13:53 09:13:55 09:13:59 09:14:04 09:14:06 09:14:09
A. Thank you. 09:14:11
Q. Have you ever given a deposition before? 09:14:11 09:14:13
A. Never. 09:14:13
Q. I have a lot of ground to cover. 09:14:13

This might take a while so feel free to ask for breaks. 09:14:18 09:14:21
A. Okay. 09:14:21
Q. Given that English is not your first language -- 09:14:21 09:14:26
A. No. 09:14:27
Q. -- if there is anything challenging about what I am asking, please don't hesitate to utilize the interpreter. If you don't understand something, please ask me to -- 09:14:28 09:14:30 09:14:33 09:14:36
A. Thanks for understanding. 09:14:38
Q. I can ask terrible questions. Mr. Hynes knows that. 09:14:39 09:14:42
You -- how old are you today? 09:14:44
A. I'm -- I will be 84 the end of the year by November. 09:14:47 09:14:55
Q. You're joking? 09:14:56
A. I was born in 1940, November. 09:14:57
Q. Wow. You look great. 09:15:00
A. Thank you. Thank you. 09:15:03
MR. PLACITELLA: 84 I ask what you're doing here. 09:15:07 09:15:09
Q. You what born in China, correct? 09:15:10
A. Yes. 09:15:12

Q. Where regionally in China? 09:15:12
A. In the southwest. 09:15:15
Q. Southwest? 09:15:17
A. Southwest. The area called Chonqing. It's a Sichuan province, used to be but later that city was I think changed into the direct city under central government which elevate status to like a province like a state. 09:15:18 09:15:22 09:15:26 09:15:33 09:15:38
Q. Okay. You went to college in China originally, correct? 09:15:40 09:15:46
A. Yes. 09:15:47
Q. I saw a reference to postgraduate work done at the University of Moscow. Is that the -- 09:15:48 09:15:54 09:15:58
A. No, no. What I meant here, you see I went to college in 1957, so at that time, China and Russia still in honeymoon, but later they broke from each other. So at that time, the Peking University which attended was consider the premium university in China. So the government says since the Moscow University science program, they are six-year instead of a four year, we should follow that. Therefore, my undergrad program it take six years although the degree is only a bachelor. 09:15:58 09:16:03 09:16:11 09:16:15 09:16:21 09:16:25 09:16:32 09:16:38 09:16:43 09:16:47

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Q. I understand. I was asking because 09:16:50
the University of Idaho is in Moscow, Idaho. 09:16:54
A. That's right. 09:17:00
Q. So I didn't know if you had ever 09:17:03
attended school at Moscow Idaho, which is -- 09:17:05
A. I'm sorry. I thought Moscow in 09:17:09
Russia. 09:17:13
Q. Well, I was looking to clarify that. 09:17:13
A. Okay. 09:17:17
Q. I appreciate it. All right. When 09:17:17
did you -- when did you come to the United States 09:17:33
for the first time? 09:17:36
A. 1981. 09:17:38
Q. 1981? 09:17:40
A. Summer. 09:17:41
Q. This was after you earned your 09:17:42
master's in science in mineralogy at The Institute 09:17:45
of Geology Sand Geophysics at the Chinese Academy of 09:17:49
Sciences? 09:17:53
A. Yes. 09:17:53
Q. All right. In 1981, did you -- is 09:17:54
that when you started working with Professor Donald 09:18:00
Bloss and Paul Ribbe? 09:18:04
A. Yes. 09:18:05

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Q. Okay. That was at -- 09:18:06
A. Actually 1981, because it was the 09:18:07
sabbatical year of Donald Bloss, so actually he got 09:18:13
the chair professor in University of New Mexico in 09:18:19
Albuquerque. So I joined him directly first in 09:18:24
Albuquerque during his sabbatical. Then the next 09:18:30
year we move back to Virginia Tech. 09:18:35
Q. Okay. You completed your PhD program 09:18:38
in geology and mineralogy in 1985? 09:18:45
A. Actually, it was in '84. However, I 09:18:49
attended the '85 graduation, the commencement, yeah. 09:18:54
Q. You did your postdoctoral research... 09:19:01
A. After my PhD. 09:19:10
Q. I understand. Okay. Tell me about 09:19:11
the -- do you have a lab in Delaware? Am I 09:19:17
understanding this correctly? 09:19:21
A. Now? 09:19:23
Q. Yes. 09:19:23
A. I have simple equipment, polarized 09:19:25
light microscope at home. Okay. 09:19:30
Q. Okay. 09:19:32
A. But it's not a lab. You can look at 09:19:33
the same slides or things like that. 09:19:38
Q. Is that in Newark, Delaware or in -- 09:19:40

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A. Bear, Delaware. 09:19:43
(Reporter asks for clarification.) 09:19:43
THE WITNESS: B-e-a-r, that's next to 09:19:45
Newark. 09:19:49
Q. Okay. I didn't know there was a 09:19:49
Newark, Delaware, so Bear is completely new to me. 09:19:51
A. Yes. 09:19:58
Q. Do you live in Delaware? 09:19:59
A. Yes. 09:20:00
Q. Okay. This sounds like a trap 09:20:01
question or something. It's not, I promise you. I 09:20:09
am curious. 09:20:12
What is your immigration status? 09:20:12
A. I'm an American citizen. 09:20:14
Q. You are, okay. When did you get 09:20:16
naturalized as an American citizen? 09:20:19
A. I guess after work at Hercules. I 09:20:21
start working for Hercules in 1987, but at that time 09:20:24
I was still -- I was at a green card. However, my 09:20:30
job, I have to travel. Hercules multination 09:20:36
company. We have about six, 70 plus facilities in 09:20:42
Europe, so I had to travel to Europe. The company 09:20:49
said we can do the visa for you. However, it takes 09:20:54
time. However, you already here for so many years, 09:21:01

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you're eligible to be naturalized. Then it makes 09:21:07
your travel to work easier. So then, I was 09:21:13
naturalized in 1995. In, let me see, eight years 09:21:17
after I work for Hercules. 09:21:26
Q. Do you -- you have a series of 09:21:31
publications going back. I think the earliest one 09:21:51
that I have is an article that you wrote or coauthor 09:21:55
on with Professor Bloss and Mickey Gunter from 1983 09:22:02
called "Gladstone-Dale Constants; a New Approach." 09:22:09
A. Mm-hmm, yes. 09:22:15
Q. You're familiar with this article? 09:22:16
A. Yeah. 09:22:17
Q. I don't need to mark this article. 09:22:18
I'm just -- is this the first time that your name 09:22:21
appeared as an author in the peer-reviewed 09:22:24
literature? 09:22:26
A. I think earlier than that, because I 09:22:27
listed only articles related to the polarized light 09:22:31
microscopy optical property of minerals. However, 09:22:40
even when I was in China I published in 09:22:45
peer-reviewed articles. 09:22:49
Q. Let me come back to you. We need to 09:22:50
clarify something for her. 09:22:52
(Reporter asks for clarification.) 09:22:52

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THE WITNESS: Light microscopy. 09:22:57
Q. We did a search for articles that you 09:23:02
had authored. I think was the earliest one that we 09:23:08
pulled up. 09:23:11
Did you publish articles in China 09:23:12
before coming to the United States? 09:23:15
A. That's right. 09:23:16
Q. Had you published anything related to 09:23:17
polarized light microscopy in China before coming to 09:23:20
the United States? 09:23:25
A. Yes, I did. 09:23:25
Q. You did. Before I ask you about 09:23:27
that, when did you meet Mickey Gunter? 09:23:33
A. 1981, when I arrived at Albuquerque. 09:23:37
Because he was in Albuquerque as well with Doug 09:23:42
Bloss. That's the first time we met. 09:23:50
Q. In Albuquerque that was part of the 09:23:52
graduate program? 09:23:56
A. Yes, my PhD program. 09:23:56
Q. You and Mickey Gunter, I mean, to 09:24:00
this day you guys have a professional friendship. 09:24:07
You guys have been friends for a long time? 09:24:10
A. Yeah. 09:24:13
Q. I have to ask you this: Stories get 09:24:13

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told and everything. I have heard that when you 09:24:20
guys were in your graduate program that you lived in 09:24:24
the same building as each other. 09:24:28
A. That is not true. 09:24:30
Q. That is not true. Okay. 09:24:30
A. You see Mickey was married. 09:24:32
Q. Yeah. 09:24:34
A. So we lived in different apartment, 09:24:35
okay. And after he come back from Albuquerque, and 09:24:42
she [sic] and his wife, they rent a home, but I only 09:24:50
rented apartment in apartment complex. So then we 09:24:56
have never been roommate. I noticed something like 09:25:02
Dr. Longo said we were roommate. No. We were 09:25:06
office mate. That is inaccurate. And also school 09:25:10
mate. Okay. 09:25:14
Q. Okay. Well, we can correct that 09:25:15
rumor then. 09:25:19
A. Yeah. Thanks. 09:25:21
Q. You guys did work together. You guys 09:25:22
did your school work together. You were friends. 09:25:24
A. That's right. 09:25:29
Q. And you're still friends? 09:25:29
A. Right. 09:25:32
Q. You are -- Dr. Longo has said this. 09:25:34

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You were there for his testimony -- quite 09:25:43
well-respected with the polarized light microscopy. 09:25:48
How did you get involved in that specific field? 09:25:51
What drew you to it? 09:25:54
A. Polarized light microscopy? 09:25:56
Q. Right. 09:26:00
A. My first job in China after I 09:26:01
graduate from the college, I got a job in northwest 09:26:03
China, which is a geological survey of Gansu 09:26:12
Province. So the structure in China geology is you 09:26:16
have a ministry of geology, then have geological 09:26:20
survey in every province. Now, at that time I was 09:26:24
working at central lab of the geological survey of 09:26:30
Gansu Province. The mission of that lab I was in a 09:26:40
group called rock and mineral identification. China 09:26:43
at that time, they are still doing the grunt 09:26:50
geological work, which is the geological mapping. 09:26:55
The Gansu is a very large province. 09:26:59
The field geologists, when they do the mapping, they 09:27:04
collect samples on a grid, like every kilometer or 09:27:09
every 500 meters. So they put a grid, they collect 09:27:15
samples, rocks, minerals. So they sent us samples 09:27:22
to our lab for us to identify. The polarized light 09:27:27
microscope is the instrument. 09:27:34

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So the rock, we ground the rock. 09:27:37
There is a lot for to prepare the samples for us. 09:27:40
You grind the rock, cut in small piece, grind that 09:27:45
to 30 microns thick in uniform, and then cover with 09:27:49
cover glass with glue. Then you put this on the 09:27:55
polarized light microscope. Then you identify 09:27:59
whether it's quartz, it's feldspar, it's muscovite. 09:28:05
Anyway, those so-called rock-forming minerals. Of 09:28:13
course, the ultra basic rock is not uncommon now, 09:28:18
which contains serpentine and chrysotile -- 09:28:21
(Reporter asks for clarification.) 09:28:21
THE WITNESS: It's a mineral name, 09:28:35
chrysotile, c-h-r-y-s-o-t-y-l-e. 09:28:35
MR. HYNES: I-l-e. 09:28:42
A. So, therefore, as I said, I start to 09:28:43
use the polarized light microscopy to identify 09:28:46
rock-forming minerals in 1964. Actually, I've been 09:28:53
doing that in China for maybe more than ten years. 09:29:05
Yeah. 09:29:09
Q. What we are going to be discussing 09:29:13
today has to do with a process referred to as 09:29:16
central stop dispersion staining, which am I correct 09:29:20
that this methodology is something that you 09:29:27
developed? 09:29:31

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A. No. Central stop dispersion staining was invented by Russia mineralogist in 1930s. It was I think introduced to China probably 1950s. Okay. And also to the United States I think Dr. McCrone was the pioneer to introduce that method. 09:29:32 09:29:37 09:29:47 09:29:54 09:29:59

Q. We'll talk about it in more detail later. 09:30:06 09:30:09

A. Okay. 09:30:10

Q. But the -- it's called central stop because there is actually a block that blocks the light that's in the central part of the aperture that allows polarized light to travel around that central block. 09:30:10 09:30:13 09:30:17 09:30:22 09:30:24

A. Actually, I actually brought today an objective central stop, the McCrone. 09:30:25 09:30:31

Q. Great. 09:30:34

A. Yes. There's a small metal disc that the diameter are usually 2 to 3 millimeter in size, a circle metal disc at a back focal plane of the objective. Yeah. That is called central stop. 09:30:36 09:30:44 09:30:48 09:30:53

Q. And the purpose of this is to prevent light from passing directly through -- 09:30:56 09:30:59

A. To block the batching wavelengths. 09:31:03

Q. Okay. 09:31:07

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A. Between the liquid and the solid. 09:31:08

Q. Cool. We'll get more technical about that later. 09:31:13 09:31:16

A. Okay. 09:31:17

Q. There's been something that's been referred to as the "Su Method" of dispersion staining for the identification of chrysotile, maybe not for chrysotile but for asbestos in samples. What is your understanding of what the "Su Method" is and how does this distinguish from normal central stop dispersion staining process? 09:31:18 09:31:35 09:31:41 09:31:49 09:31:54 09:31:59 09:32:05

MR. HYNES: Form. 09:32:11

You can answer. 09:32:11

A. The Su Method, actually, that was named by a professor I think in Amherst University, a university in Massachusetts, Stoiber and Morse, Professor Morse. Because he is a very famous, like, mineralogist. When he wrote -- his textbook as been widely used in the geology department. They called it Pumpkin Book because the book is pumpkin color Dr. Green is Green Book. Professor... 09:32:12 09:32:15 09:32:30 09:32:32 09:32:38 09:32:46 09:32:51 09:33:01

Q. Morse? 09:33:04

A. Morse book people call it Pumpkin Book. 09:33:05 09:33:08

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Q. So you have the Pumpkin Book and you have the Green Book? 09:33:09 09:33:11

A. That's right. 09:33:11

Q. All right. 09:33:11

A. After they come to the states to do PhD with Doc Bloss, Professor... Pumpkin Book author. 09:33:13 09:33:15 09:33:30

Q. Morse? 09:33:30

A. Morse, he was revising his book. It happened the publisher sent his book for me to review. Okay. And when I was reviewing his book, I found there's a part of his textbook, how do you calculate the refract [ph] index from the dispersion staining color. It's very cumbersome. It's a lot mathematics. Actually so I was actually friends with Professor Morse, so we talk about. I said this shouldn't be that complicated. Okay. 09:33:32 09:33:39 09:33:43 09:33:53 09:34:00 09:34:06 09:34:11 09:34:18 09:34:26

Professor Morse used a calculation and Dr. McCrone used a graphic solution. You plot the dispersion curve of the liquid, and also you plot its dispersion curve of whether it's chrysotile or amosite, whatever. You plot this curve. You find the intersection where it's so-called matching wavelengths. Then you graphically solve the refract 09:34:32 09:34:37 09:34:43 09:34:50 09:34:55 09:35:01 09:35:04

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index for the 589 nanometer wavelengths because that is the standard wavelengths used to describe material refract index. 09:35:11 09:35:17 09:35:23

MR. PLACITELLA: Would it make sense for the two of you to switch? 09:35:39 09:35:41

A. Actually, now, that's why I develop the so-called equation a simple equation to go from the dispersion coefficient of the liquid which is listed on the bottle of the liquid. 09:35:53 09:36:00 09:36:07 09:36:14

Q. Right. 09:36:17

A. And also the dispersion of the mineral you have those data in a textbook, in a mineralogy book. I used that to the parameter. I found an analytical relationship between them and the wavelength. So that would make the derivation of refract index from the dispersion staining color a lot easier -- 09:36:19 09:36:21 09:36:26 09:36:31 09:36:36 09:36:45 09:36:50

Q. And then -- I'm sorry. 09:36:52

A. Then Professor Morse, he revised that chapter of his book and he used my material. He is the first man call it Su Method. So Su Method is not just for the asbestos identification; it is for deriving the numerical value of refract index, from the dispersion staining color. 09:36:54 09:37:00 09:37:08 09:37:13 09:37:18 09:37:23

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Q. Okay. And the steps involved in this 09:37:27
involve the interaction between wavelength and 09:37:31
refractive index values based on the temperature of 09:37:36
what's being sampled at that time? 09:37:40
A. Yeah. The temperature, actually the 09:37:42
reason the temperature is considered because the 09:37:45
liquid is sensitive -- its refract index is 09:37:50
sensitive to the temperature. Therefore, the effect 09:38:05
is on the fourth decimal place, about usually around 09:38:11
.0005. So each fluctuates of 2 centigrade degree 09:38:17
will change one unit in the third decimal place. 09:38:24
Then it matters. 09:38:29
Q. Okay. Okay. We will have plenty of 09:38:31
time to talk about that more. 09:38:42
A. Okay. 09:38:44
Q. I want to I suppose go through some 09:38:44
of the legals, legal part of this. 09:38:48
You are here because of -- that 09:38:54
didn't work the way I wanted it to. You're here 09:39:00
because of a lawsuit filed here in New Jersey called 09:39:11
Kayme Clark and also because of the ongoing 09:39:19
litigation in what's referred to as the 09:39:23
multidistrict litigation related to the ovarian 09:39:25
cancer cases. Do you understand that? 09:39:31

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A. Yes. 09:39:33
Q. Okay. There are a couple of exhibits 09:39:34
that I'm going to start building out for this 09:39:37
deposition. The first two exhibits; Exhibit 1, is 09:39:40
just the notice of deposition for the Kayme Clark 09:39:43
case. 09:39:49
(Exhibit 1 Clark Third Amended Notice of 09:39:51
Deposition marked for identification.) 09:39:53
Q. Exhibit 2 is going to be the notice 09:39:53
of deposition for the MDL, both for today. I don't 09:40:07
really have I don't think any questions about those 09:40:12
documents specifically. 09:40:15
(Exhibit 2 PSC 2nd Amended Deposition Notice 09:40:15
of Shu-Chun Su marked for identification.) 09:40:21
Q. Exhibit 3 is the report that you 09:40:21
issued dated May 21st of 2024. I believe that's the 09:40:23
document that's directly in front of you. 09:40:28
A. Yep. 09:40:30
Q. Great. I'm sure you have gathered we 09:40:30
will be talking about this document. 09:40:33
A. Okay. 09:40:34
(Exhibit 3 Report dated May 21, 2024 marked 09:40:34
for identification.) 09:40:38
Q. Exhibit 4 is going to be a report 09:40:38

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that you authored in 2022 titled "Talc Misidentified 09:40:40
As Chrysotile, a Review of MSS 71134 and 71376 Talc 09:40:47
Analysis of Gold Bond Medicated Powder dated 09:40:57
January 30, 2022." 09:41:03
(Exhibit 4 Talc Misidentified As Chrysotile, 09:40:46
a Review of MSS 71134 and 71376 Talc Analysis of 09:40:48
Gold Bond Medicated Powder dated January 30, 2022 09:40:58
marked for identification.) 09:41:05
You're familiar with this -- 09:41:05
A. Yes. 09:41:06
Q. -- publication too? 09:41:07
A. Yes. It's not publication. It's 09:41:08
just a review. 09:41:10
Q. Thank you. That's correct. I did 09:41:11
misspeak on that. 09:41:16
That publication I believe was the 09:41:16
first time that you had signed your name to any 09:41:19
report involving a litigation-type matter; is that 09:41:24
right? 09:41:24
A. I think so. But at that time I 09:41:31
didn't even understand the nature of the report 09:41:32
before me. It's just a report about analysis of the 09:41:46
asbestos. 09:41:52
Q. Right. Before this report, 09:41:53

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Exhibit 4, which is from 2022, you did have prior 09:42:01
involvement with MAS and Dr. Longo's laboratory in 09:42:10
Georgia, right? 09:42:14
A. Yes. 09:42:15
Q. You served as an NVLAP or NVLAP 09:42:15
auditor, correct? 09:42:26
A. Yes. 09:42:27
Q. Did you know Dr. Longo personally 09:42:28
before this report? 09:42:33
A. You see, I did the on-site assessment 09:42:37
of an MAS in 2015. That's the first time I met Dr. 09:42:42
Longo. Because after the assessment, I think we 09:42:51
talked briefly before I left. That's only time we 09:42:56
talked before the -- before this, this review. 09:43:04
Q. Before you saw him in the courthouse 09:43:09
in May? 09:43:11
A. That's right. 09:43:12
Q. Do you recall being at MAS before 09:43:13
2015? 09:43:23
A. The name? 09:43:24
Q. The lab, MAS. 09:43:25
A. Yeah, yeah, yeah. 09:43:27
Q. You didn't meet Dr. Longo until 2015? 09:43:28
A. That's right, until I visit the lab. 09:43:32

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But I heard about that lab, 'cause, as you know, the 09:43:35
NVLAP, I am one of the technical expert for NVLAP. 09:43:40
So we now probably pretty much the laboratory in the 09:43:45
United States, so MAS is one of them. 09:43:49
Q. You may not -- you may just not 09:43:55
recall this. We can mark this as Exhibit 5. I am 09:43:58
going to do all my exhibits electronically. We 09:44:01
don't need to sticker this. I will provide the 09:44:04
documents electronically. 09:44:08
(Exhibit 5 2006 Accreditation Sheet Or 09:44:10
Report For Material Analytical Services marked for 09:46:14
identification.) 09:44:49
Q. I just need to mark this. I don't 09:44:49
have any detailed questions about this document 09:45:10
right now other than, were you aware or did you 09:45:13
just -- I mean, I know it's been a long time, but 09:45:24
did you just not recall being present at MAS as far 09:45:27
back as December of 2006? 09:45:32
A. I forgot. 09:45:35
Q. No problem. I may ask you about that 09:45:36
later. I may later. 09:45:45
MR. BRALY: Exhibit 5 is a 2006 09:46:06
accreditation sheet or report for material 09:46:10
analytical services. That's what it is. 09:46:16

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Q. Dr. Su, just one additional question, 09:46:42
if your name appears as the assessor's name at 09:46:45
the -- in that document, does that mean that you 09:46:49
personally did the assessment of the lab? 09:46:51
A. Yes, I did. 09:46:54
Q. Okay. You can set that aside. We 09:46:55
may come back to that. 09:46:58
A. Okay. 09:47:00
Q. The report that is Exhibit 4, it says 09:47:01
at the very beginning of this -- you see it on the 09:47:12
screen here that Dr. Gunter had asked you to do -- 09:47:15
conduct the analysis of the materials, correct? 09:47:21
A. Mm-hmm, yes. 09:47:24
Q. Did Dr. Gunter, was he the first 09:47:27
person to bring to your attention that Dr. Longo was 09:47:30
using polarized light dispersion staining to 09:47:35
identify chrysotile and talc samples? 09:47:40
A. No. Because at the lab when I do the 09:47:45
assessment, I will check the -- there are two 09:47:48
program, PLM and TM. So the PLM is dispersion 09:47:53
staining. 09:48:00
Q. Was Dr. Gunter -- did Dr. Gunter 09:48:01
bring to your attention that Dr. Longo was finding 09:48:06
chrysotile in cosmetic talc samples by PLM? 09:48:12

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A. That document says that, but at that 09:48:21
time I was not aware of the litigation, you see. 09:48:26
Q. Right. That's kind of what I was 09:48:31
getting at. Dr. Gunter was the person who brought 09:48:34
this issue to your attention, right? 09:48:37
A. Correct. 09:48:40
Q. You and Dr. Gunter -- there was a 09:48:40
criticism about this report, Exhibit 4, that you may 09:48:50
not have written Exhibit 4, this report. You're 09:48:56
familiar with that criticism, correct? 09:49:01
A. Which criticism? 09:49:03
Q. The criticism that you did not 09:49:05
actually write this report. You're aware of that 09:49:06
criticism? 09:49:10
A. Yes. 09:49:10
Q. And you and Dr. Gunter got together 09:49:11
and shot a short video where you said that, no, I 09:49:14
did, in fact, this is my report? 09:49:18
A. Yeah. 09:49:20
Q. Did Dr. Gunter write this report and 09:49:20
then ask you to review it for whether or not it was 09:49:27
in conformance with your opinions? 09:49:31
A. No, not at all. Not at all. 09:49:33
Q. This report from 2022 is your 09:49:36

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authorship. You typed this out? 09:49:40
A. Yeah. 09:49:43
Q. Okay. 09:49:43
A. Yes. 09:49:45
Q. For Exhibit 3 -- in Exhibit 3 is your 09:49:46
report in this case. It's the one that you have in 09:49:56
front of you. 09:49:58
A. Mm-hmm. 09:50:00
Q. There is a PowerPoint section. It's 09:50:00
Appendix C. 09:50:03
A. Yes. 09:50:05
Q. Who created that PowerPoint? 09:50:06
A. Myself entirely. 09:50:08
Q. Entirely? 09:50:10
A. Yeah. 09:50:11
Q. Okay. 09:50:11
A. It takes lot of time and effort. 09:50:12
Q. Oh, I know it does. My dad is 83. 09:50:14
He can barely turn on a computer. I'm impressed. 09:50:18
MR. PLACITELLA: My dad is 98 and he 09:50:22
is very good in turning on a computer. 09:50:24
MR. BRALY: You should take some tips 09:50:28
from him. 09:50:30
BY MR. BRALY: 09:50:32

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Q. Okay. So the Exhibit C, the PowerPoint that you developed that you put that together yourself? 09:50:33 09:50:37 09:50:40

A. Yes. 09:50:40

Q. Okay. Did Dr. Gunter have any input or any involvement with the development of the report that's in front of you now, which is Exhibit 3? 09:50:43 09:51:05 09:51:09 09:51:12

A. Not at all. I did not talk with him during this period. I never told him, like, I'm working on something. Okay. 09:51:12 09:51:19 09:51:26

Q. When you say during this period, do you mean during the period that you created the Exhibit 3 PowerPoint? 09:51:28 09:51:30 09:51:34

A. Yes. 09:51:35

Q. Yes, okay. When was the last time that you talked with Dr. Gunter? 09:51:36 09:51:39

A. That should be maybe months or more ago. Yes, that would be the last time we talked. 09:51:47 09:51:55

Q. Are you saying months ago? 09:52:02

A. Months or more ago. 09:52:03

Q. Months or more, okay. You are acquainted with Dr. Matt Sanchez and Dr. Bryan Bandli? 09:52:05 09:52:08 09:52:19

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A. Yes. 09:52:19

Q. When did you first meet Dr. Sanchez or Dr. Bandli? 09:52:20 09:52:24

A. I believe it was in two thousand -- I forget the year. The first time we met, Sanchez, it was last symposium of The Geological Society of America annual meeting. They have a special symposium on Dr. Bloss, the contribution. So I remember of course Dr. Gunter was there and Matt Sanchez was there. 09:52:26 09:52:37 09:52:42 09:52:50 09:53:00 09:53:10 09:53:18

Q. Did Dr. Gunter introduce you to Matt Sanchez? 09:53:19 09:53:23

A. Yes. 09:53:23

Q. Are you aware of the relationship between Dr. Gunter and Matt Sanchez and Bryan Bandli? 09:53:24 09:53:26 09:53:31

A. That's right, I am fully aware. Actually, I met Dr. Bryan in Chicago because McCrone Research Institute host a course about spindle stage. So I was one of the instructors. Dr. Gunter also brought, brought Dr. Bryan. I believe he was doing his PhD with him at that period. So he came also to Chicago. That's the first time I met Bryan. 09:53:35 09:53:38 09:53:47 09:54:03 09:54:08 09:54:14 09:54:19

Q. And Dr. Bryan is Bryan Bandli? 09:54:24

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A. Yeah. 09:54:29

Q. Perfect. The Bloss symposium where Dr. Gunter introduced you to Matt Sanchez, when was that? 09:54:30 09:54:34 09:54:37

A. 2012 or -- I don't remember exact year. 09:54:42 09:54:49

Q. When did you first come to know that Matt Sanchez serves as an expert witness for Johnson & Johnson in litigation-related matters? 09:54:52 09:54:56 09:55:03

A. I think until this year I start get involved. I didn't know that before. 09:55:07 09:55:14

Q. Okay. Did you know if Matt Sanchez was involved with expert consulting or testifying work for anybody before this year, 2024? 09:55:17 09:55:20 09:55:25

A. I wasn't aware. 09:55:29

Q. When you met Bryan Bandli in Chicago, did Dr. Gunter introduce you to him as well? 09:55:32 09:55:47

A. Yes. 09:55:51

Q. Okay. When did that occur? What year? 09:55:51 09:55:57

A. Let me see my... I should be able to find out from -- because I listed that on a training course I conducted. Let me see my... 1986 -- no. That's Virginia Tech. That is not Chicago. Let me see. 09:55:58 09:56:02 09:56:10 09:56:29 09:56:34

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Q. Can I make a suggestion? At page -- it's the 14th overall page but page two of your references, there is an entry here -- if you look at the screen -- for 2004 where it's Dr. Gunter, Bryan Bandli, Dr. Bloss talking about how to build a spindle stage. This looks just inferentially kind of like what you're talking about, sort of. 09:57:31 09:57:36 09:57:39 09:57:43 09:57:48 09:57:52 09:57:58

A. This paper resulted from that McCrone course. 09:58:05 09:58:10

Q. Perfect. You first met Bryan Bandli sometime -- 09:58:10 09:58:14

A. Before -- 09:58:15

Q. -- before 2004? 09:58:16

A. Yeah. 09:58:20

Q. Is that fair? 09:58:21

MR. HYNES: For clarification go to page four, it's the second entry on page four. 09:58:22 09:58:23

THE WITNESS: Yeah, that was the short course. 09:58:34 09:58:36

Q. Okay. 2003? 09:58:37

A. Yeah. 09:58:40

Q. Okay. Are you aware that Matt Sanchez and Bryan Bandli had both been students of 09:58:41 09:58:46

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Mickey Gunter? 09:58:52
A. Yes. 09:58:53
Q. Yes. Had you maintained a working 09:58:53
relationship with either Matt Sanchez or Bryan 09:59:00
Bandli after meeting them, meaning did you 09:59:05
correspond with them or did you work collaboratively 09:59:09
on papers? 09:59:13
A. No. 09:59:14
Q. After -- so you provided to me, and 09:59:14
to Mr. Placitella, information including 09:59:47
correspondence between yourself and Matt Sanchez, 09:59:53
and between yourself and Ann Wylie? 09:59:57
A. Yes. 10:00:00
Q. Yes? 10:00:02
A. What's on the screen right now is a 10:00:03
collection of seven pages. I am going to go through 10:00:05
some of these. They are in chronological order. 10:00:08
The first one is -- by the way, this 10:00:11
is Exhibit 6. 10:00:14
(Exhibit 6 Series of Emails marked for 10:00:15
identification.) 10:00:16
Q. The first one is dated May 23, 2024, 10:00:16
at very early in the morning. What were you doing 10:00:22
at 3:37 a.m.? 10:00:24

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A. I woke up probably early. 10:00:27
MR. HYNES: Clarifying I think 10:00:31
timestamp on these emails is Chinese -- 10:00:34
THE WITNESS: I was in the States 10:00:39
last May. No, no. That's right. The May 23rd, I 10:00:40
was in China. 10:00:45
Q. Okay. 10:00:47
A. Now I recall. I came back on the 10:00:48
27th. 10:00:52
MR. PLACITELLA: You're not as crazy 10:00:53
as I am. 10:00:55
Q. Regardless, the question that you 10:00:57
were asking Dr. Sanchez was whether or not he could 10:01:02
send a gram or less of the two Calidria chrysotiles 10:01:06
to me at your office in Bear, Delaware. Do you see 10:01:11
that? 10:01:16
A. Yes. 10:01:16
Q. [Reading] It would be great if they 10:01:16
can be delivered no later than 5/27. 10:01:20
A. That's the date I came back from 10:01:23
China. 10:01:26
Q. All right. And then you're aware 10:01:27
that Dr. Longo's first day of hearing in the Clark 10:01:32
case relative to his PLM procedure began on 10:01:40

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May 30th? 10:01:44
A. Yes. 10:01:47
Q. You were present for that? 10:01:48
A. Yes. 10:01:49
Q. Right. So prior to the hearing on 10:01:49
May 30th, you had not conducted any analysis on 10:01:55
Calidria or samples identify as Calidria yourself, 10:02:00
correct? 10:02:05
A. No. 10:02:05
Q. Do you know where Matt Sanchez 10:02:06
acquired this Calidria material that he had? 10:02:11
A. I believe it was from Mickey Gunter, 10:02:17
Dr. Gunter. 10:02:22
Q. Did you ever review Dr. Gunter's PLM 10:02:24
analysis of Calidria? 10:02:28
A. No. 10:02:31
Q. Are you aware that Dr. Gunter did an 10:02:33
analysis of Calidria? 10:02:36
A. Yeah, I'm aware, but I want -- I am 10:02:39
not interested in other people's analysis. I want 10:02:42
to see myself. Okay. 10:02:45
Q. Right. Okay. Are you aware that Dr. 10:02:48
Gunter testified that his analysis of Calidria 10:02:59
produced central stop dispersion staining colors 10:03:03

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similar to Dr. Longo's analysis of Calidria? 10:03:07
MR. HYNES: Objection. Assumes 10:03:12
facts, misstates testimony. 10:03:14
A. I wasn't aware of any testimony in 10:03:14
May. 10:03:17
Q. The next message in Exhibit 6 is from 10:03:23
May 23rd -- I said these were chronological. They 10:03:28
are -- is from May 23rd. There is a response from 10:03:31
Matt Sanchez that is not included here. It says, 10:03:35
quote, text hidden. Do you see that? 10:03:39
A. Okay. 10:03:41
Q. Do you know what Dr. Sanchez wrote 10:03:43
back to you? 10:03:46
A. Oh, yes. He said I will, I will make 10:03:47
sure it arrived before May 27th. So I said thank 10:03:50
you. Okay. 10:03:55
Q. Okay. The next correspondence that 10:03:56
was produced to me is from June 11, 2024, at 10:51 10:04:01
a.m. 10:04:08
A. Mm-hmm. 10:04:08
Q. This is from Dr. Sanchez to you 10:04:09
discussing a call that is happening that day. 10:04:13
A. Yeah. 10:04:17
Q. Okay. And Bryan in this context is 10:04:17

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Bryan Bandli? 10:04:21
A. Yes. 10:04:22
Q. This occurred after Dr. Longo had 10:04:26
completed his testimony about his PLM analysis -- 10:04:30
A. Yes. 10:04:30
Q. -- in the court case with Judge 10:04:35
Viscomi? 10:04:38
MR. HYNES: Wait for him to finish 10:04:42
the question. Hang on. Give him a second to make 10:04:43
sure the question is through and then respond. Not 10:04:46
in the middle of the question. It's okay. 10:04:48
THE WITNESS: Okay. 10:04:50
MR. BRALY: People can do this for 10:04:51
years and get that wrong. It's -- this is 10:04:52
conversational, but it's not a conversation, if that 10:04:56
makes sense. 10:05:00
MR. HYNES: She can't take down two 10:05:01
people speaking at once. 10:05:03
BY MR. BRALY: 10:05:06
Q. The next correspondence that we have 10:05:06
from Exhibit 6 is the same date, couple minutes 10:05:09
later where you just respond and say yeah, 12 is 10:05:12
fine, right? 10:05:16
A. Correct. 10:05:17

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Q. Apparently at 12 you guys had a 10:05:19
meeting and then at 1:46 p.m. you said please see 10:05:23
the attachment. 10:05:30
A. Yes. 10:05:30
Q. What was attached is a file dated 10:05:30
June 7, 2024, called the Pittsburgh Work Plan. Do 10:05:36
you see that? 10:05:40
A. Yes. 10:05:40
Q. Okay. This is the next page. It's 10:05:40
not something I need to ask you about. 10:05:49
Then the last email that I have is 10:05:53
from June 12, 12:47 p.m. that says [Reading] I have 10:05:56
the link now. No resend is necessary. 10:06:01
Do you see that? 10:06:05
A. Yes. 10:06:05
Q. Is that the last correspondence that 10:06:05
you had in writing with either Matt Sanchez or Bryan 10:06:08
Bandli? 10:06:12
A. I believe so. 10:06:13
Q. Okay. The remainder of the 10:06:14
conversations or communications between you and Mr. 10:06:18
Sanchez and Mr. Bandli have been by phone or by 10:06:22
video, correct? 10:06:26
A. You see, I went to RJ Lee in 10:06:28

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Pittsburgh on the 14th of June, two days after this 10:06:34
meeting because we were discussing what I want to 10:06:40
do, what kind of sample I want analyzed. So after 10:06:45
this written communication, I met him in Pittsburgh. 10:06:52
Okay. 10:07:00
Q. My question was, all of the 10:07:01
conversations between you and Dr. Sanchez and Dr. 10:07:04
Bandli after June 12th have been either face-to-face 10:07:07
or by video conference or on the phone? 10:07:13
A. Correct. 10:07:16
Q. Did somebody tell you not to 10:07:17
communicate in writing with Dr. Sanchez? 10:07:19
A. No, no. Because we see each other, 10:07:22
there is no need to communicate in writing. Okay. 10:07:26
Q. Hold on a second. I am going to have 10:07:54
to do just a little bit of mechanical tinkering with 10:07:57
this. 10:08:00
MR. HYNES: Good time for a quick 10:08:00
break? 10:08:02
MR. BRALY: Yeah, let me ask a 10:08:03
question and we can do that. I agree with you. 10:08:04
It's a PowerPoint. I just have to export it as a 10:08:08
pdf. This will be Exhibit 7. 10:08:12
(Exhibit 7 Pittsburgh Work Plan marked for 10:08:27

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identification.) 10:08:27
Q. This is the supposed Pittsburgh Work 10:08:27
Plan that you had attached to that email to Dr. 10:08:31
Sanchez and Dr. Bandli, correct? 10:08:35
A. Correct. 10:08:37
Q. This work plan is a two-page document 10:08:37
that includes steps that you wanted to take -- what 10:08:43
does it include? I shouldn't presume. You tell me, 10:08:49
what were you doing here? 10:08:53
A. Yes. Because RJ Lee Group, they have 10:08:56
a Leica DM 2700 P polarized light microscope which 10:09:12
Dr. Longo has. So what I plan to do is to use the 10:09:22
same microscope to analyze the samples in question 10:09:29
to verify my MDL report. Okay. Because when I 10:09:39
wrote MDL report was based on the data of MS report. 10:09:45
But I'm confident my analysis of this report is 10:09:53
correct. However, since I have a chance to use the 10:09:59
same instrument, I want to produce my own work to 10:10:05
prove my opinion in my MDL report. 10:10:13
MR. BRALY: Would you like to take a 10:10:20
break? 10:10:21
MR. HYNES: Yeah. Why don't we take 10:10:21
five minutes. 10:10:23
THE WITNESS: Okay. 10:10:24

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(A break was taken.) 10:28:01
BY MR. BRALY: 10:28:24
Q. Welcome back, Dr. Su. 10:28:24
A. Thank you. 10:28:27
Q. I've marked Exhibit 8. Exhibit 8 is 10:28:28
two emails. Show you the second one, the second 10:28:32
page. 10:28:37
(Exhibit 8 Two Emails marked for 10:28:37
identification.) 10:28:38
Q. It should be on the monitor in front 10:28:38
of you. The first one is dated March 5, 2024, from 10:28:40
an individual named Michael Douglas, whose signature 10:28:45
file indicates that he is an attorney at King & 10:28:47
Spalding. Do you see that? 10:28:53
A. Yes. 10:28:53
Q. It is asking you if you are amenable 10:28:53
to retention in the Kayme and Dustin Clark case. Do 10:28:56
you see that? 10:29:00
A. Yes, I see. 10:29:00
Q. The second email is also from Mr. 10:29:01
Douglas, same -- oh, it's to a distribution list 10:29:03
called J&J talc expert as well, asking if you're 10:29:11
amenable to retention in the ovarian MDL group. 10:29:17
This one is dated Friday, April 5, 2024. Do you see 10:29:23

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that? 10:29:27
A. I saw that. 10:29:27
Q. Okay. Do you have any return email 10:29:28
from you back to Mr. Douglas accepting these offers? 10:29:31
A. I remember I replied by yes. 10:29:37
Q. Did you ever -- you are on a 10:29:43
retention agreement that pays you $800 an hour, 10:29:53
correct? 10:29:56
A. Correct. 10:29:56
Q. Before March 5th of 2024, which is 10:29:57
when this first document is dated, who initially 10:30:05
approached you on behalf of Johnson & Johnson asking 10:30:10
about your availability to be an expert witness for 10:30:15
them? 10:30:18
A. Kevin, Mr. Kevin Hynes. 10:30:19
Q. Mr. Hynes, the individual sitting 10:30:26
next to you now? 10:30:28
A. Yes. 10:30:29
Q. All right. Do you recall when Mr. 10:30:30
Hynes first made contact with you? 10:30:32
A. In March or February. I don't 10:30:38
remember. 10:30:40
Q. This year though? 10:30:40
A. This year. Anyway, this year. 10:30:41

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Q. Had you ever spoken to Mr. Hynes 10:30:44
before March or February of this year? 10:30:47
A. No. We first met in Wilmington, 10:30:51
Delaware, Wilmington, Delaware. We did not speak 10:31:02
before that. 10:31:07
Q. Well, how did you come to meet? 10:31:09
A. I think I was introduced by attorney 10:31:13
Kurt Grieves. 10:31:21
Q. I am not sure. Grieves? 10:31:23
A. Grieves. 10:31:24
MR. HYNES: Greve, G-r-e-v-e. 10:31:25
MR. BRALY: Thank you. 10:31:28
BY MR. BRALY: 10:31:30
Q. Is Attorney Greve, is he -- do you 10:31:30
know who he works for? 10:31:34
A. I know. American International -- 10:31:35
AII. 10:31:41
Q. Okay. This may be -- this may be a 10:31:41
technical question so if you don't know the answer 10:31:49
to this, that's fine. 10:31:51
Do you know if he works for AII or if 10:31:53
he is a lawyer for AII? 10:31:56
A. I believe he works. 10:31:59
Q. Okay. Have you ever met an 10:32:02

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individual named Robert Faxon? 10:32:05
A. I don't remember. I don't remember. 10:32:10
I am not very good in names. 10:32:22
Q. He is a lawyer. Heavy southern 10:32:25
drawl, accent, bald. 10:32:32
A. Let me see. 10:32:39
Q. It's all right if you don't remember. 10:32:40
A. Yeah. 10:32:42
Q. If you don't remember, that's fine. 10:32:43
A. Okay. 10:32:45
Q. Do you know Mr. Greve through your 10:32:45
prior work from that report that we looked at 10:32:52
previously -- 10:32:55
A. For Golden Bond Baby Powder. 10:32:56
(Reporter asks for clarification.) 10:32:56
MR. BRALY: It's Gold Bond, but he is 10:33:05
saying it "golden." 10:33:08
BY MR. BRALY: 10:33:11
Q. Do you know how you met Mr. Greve the 10:33:11
first time, how you were introduced to him? 10:33:14
A. That was after I wrote a review for 10:33:17
Dr. Gunter. So and then I came to States in August 10:33:23
last year because my daughter -- with my daughter. 10:33:33
She lives in Washington, DC. So at that junction, I 10:33:40

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think they -- Dr. Gunter knows I am coming to the 10:33:45
States. Then I met with Mr. Greve. 10:33:52
Q. Okay. You know Dr. Gunter has served 10:33:57
as an expert witness for AII in asbestos-related 10:34:00
lawsuits. You're aware of this, right? 10:34:07
A. I only aware he working with Mr. 10:34:10
Greve. At that time, I didn't even know AII name 10:34:14
so, okay. 10:34:19
Q. All right. So Dr. Gunter initially 10:34:20
asked you to write this report in January of 2022 10:34:46
related to Gold Bond. 10:34:50
A. You finished? 10:34:56
Q. I was going to continue. 10:34:57
A. Okay. 10:34:58
Q. That's correct so far, right? 10:34:59
A. Let me say this: He, actually he did 10:35:01
not ask me to write anything. He asked me to review 10:35:05
and I believe is such complicate matter, technical 10:35:11
matter I need to write down my opinion, but he did 10:35:19
not ask me to write any review paper. 10:35:23
Q. Okay. 10:35:28
A. Okay. That I did. 10:35:29
Q. That January 2022 paper is when you 10:35:32
first theorized that the lighting Dr. Longo utilized 10:35:36

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may be at its full intensity? 10:35:42
A. Yeah, that was my opinion. 10:35:45
Q. Right. After that, you -- in August 10:35:46
of 2023, you and Dr. Gunter met again in Washington, 10:35:54
DC where you recorded the video, that very short 10:36:00
video where he confirmed that you had actually 10:36:04
written that report. 10:36:07
A. Correct. That's on the 28th of 10:36:08
August. Okay. 10:36:10
Q. That video was shot from multiple 10:36:12
different camera angles. Do you know who paid to 10:36:16
set up the videographer crew? 10:36:18
A. Nobody told me that. That I did not 10:36:22
ask. 10:36:26
Q. Up until August of 2023, had you been 10:36:27
paid any money by anybody for your work reviewing 10:36:31
Dr. Longo's PLM analysis? 10:36:37
A. No. 10:36:42
Q. After that, you were introduced to 10:36:43
Mr. Greve, who you believe to be employed with AII, 10:36:47
correct? 10:36:52
A. That was later, but not at that time. 10:36:53
Okay. 10:36:57
Q. Mr. Greve is the person who 10:36:58

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introduced you to Mr. Hynes? 10:37:02
A. Yes. 10:37:04
Q. Had you had any contact with anybody 10:37:05
representing Johnson & Johnson prior to meeting Mr. 10:37:09
Hynes? 10:37:13
A. No. 10:37:14
Q. Have you ever met Bruce Bishop? 10:37:15
A. I didn't know this name. Yeah, I 10:37:19
never met this name. 10:37:22
Q. Have you ever corresponded with Bruce 10:37:24
Bishop? 10:37:27
A. No, never. 10:37:28
Q. Other than Mr. Douglas, who we see in 10:37:38
Exhibit 8, and Mr. Hynes, have you corresponded with 10:37:42
any other attorneys for Johnson & Johnson? 10:37:45
MR. HYNES: Clarifying, do you mean 10:37:50
corresponding in writing? 10:37:52
MR. BRALY: I do. 10:37:53
A. Let me think. I don't think so, but 10:37:55
I could hardly remember. 10:38:10
Q. Other than Mr. Hynes, have you had 10:38:12
meetings or conversations with any other attorneys 10:38:14
representing Johnson & Johnson going back to 10:38:19
February or March of 2024? 10:38:23

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A. No. 10:38:27
Q. Have you ever spoken with Morty 10:38:34
Dubin? 10:38:37
A. Yes, I did. 10:38:38
Q. Tell me when you met Mr. Dubin and 10:38:39
when you guys first met. 10:38:43
A. That was the, the May 29th or 10:38:49
May 30th, Dr. Longo's hearing. At first I met Morty 10:38:57
Dubin that day. 10:39:07
Q. Okay. All right. Have you discussed 10:39:09
your potential testimony in the MDL or in Ms. 10:39:16
Clark's case with anybody other than Mr. Hynes? 10:39:21
A. No. 10:39:32
Q. Have you consulted with Mickey Gunter 10:39:32
about the nature of litigation or the types of 10:39:36
questions you may receive? 10:39:39
A. No. 10:39:41
Q. When you prepared for this 10:39:44
deposition, did you only meet with Mr. Hynes? 10:39:46
A. Yes. 10:39:50
Q. Did you review potential questions 10:39:55
that you might be asked? 10:39:57
MR. HYNES: I object on the grounds 10:39:58
of privilege to the extent that you're asking for 10:40:00

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the content of communications with counsel during the preparation for MDL and Clark cross-noticed deposition. 10:40:03 10:40:05 10:40:15

MR. BRALY: What privilege are you referring to? 10:40:16 10:40:17

MR. HYNES: Work product privilege. 10:40:17

MR. BRALY: That is not work product privileges. 10:40:19 10:40:21

MR. HYNES: With respect to the content of communications in preparation for a deposition session I believe it is. 10:40:22 10:40:22 10:40:25

MR. BRALY: So I don't agree with you. Yelling at you about it won't do anything. I'm going to modify my question, but not because I agree with you so we may come back to this at a later time. 10:40:39 10:40:41 10:40:45 10:40:48 10:40:52

MR. HYNES: Sure. Go ahead. 10:40:53

BY MR. BRALY: 10:40:56

Q. Don't tell me what, but did you review potential questions that you may be asked at this deposition? 10:40:58 10:41:00 10:41:04

A. Review with whom? 10:41:05

Q. Mr. Hynes. 10:41:07

A. We met yesterday just go over my MDL report. That's it. 10:41:10 10:41:17

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Q. No practice questions or anything like that? 10:41:19 10:41:21

A. No. 10:41:22

Q. Okay. Did you review any deposition transcripts of examinations that I've conducted or Mr. Placitella had conducted or anything of that nature? 10:41:23 10:41:26 10:41:31 10:41:37

A. I don't remember. 10:41:37

Q. Okay. Have you reviewed anybody else's deposition or trial transcripts in preparation for this case or either of these cases? 10:41:38 10:41:41 10:41:44

A. Not for the preparation, but I did see it, did read I think Dr. Longo's deposition document, the transcript, before, but I don't think it's related to my deposition. 10:41:49 10:41:57 10:42:04 10:42:09

Q. In this retention -- excuse me. In this retention letter of March 5, 2024, you're provided with an anticipated trial date for this case of July 22, 2024. Do you see that? 10:42:23 10:42:29 10:42:33 10:42:36

A. Yes, I see that. 10:42:40

Q. Now, that is not currently the trial date for Ms. Clark's case, but in March that was accurate. 10:42:41 10:42:44 10:42:47

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Are you aware that you have not been designated as an expert witness in Ms. Clark's case? 10:42:49 10:42:51

A. No. 10:42:57

Q. Okay. Your -- so it's -- your first contact with anybody representing Johnson & Johnson relative to asbestos litigation was in February or March of this year. 10:42:58 10:43:11 10:43:15 10:43:19

A. Correct. 10:43:21

Q. All right. Do you know what Mr. Hynes relationship with mister... 10:43:21 10:43:24

MR. HYNES: Greve. 10:43:31

MR. BRALY: I will start the question over again. 10:43:33 10:43:35

Q. Do you know what Mr. Hynes's relationship with Mr. Greve is going back prior to you meeting Mr. Hynes? 10:43:35 10:43:37 10:43:40

A. They have to because Mr. Greve introduce Mr. Hynes to me. They must know each other before that. 10:43:43 10:43:49 10:43:53

Q. I agree with that. 10:43:54

A. Okay. 10:43:56

Q. What I am driving at is, do you have any understanding about what -- how they knew each other or under what circumstances? 10:43:56 10:43:58 10:44:01

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A. No, I don't. 10:44:03

Q. Very well. Since your retention in March, you have been under an agreement where they will pay you $800 an hour for your time, correct? 10:44:04 10:44:11 10:44:17

A. Correct. 10:44:21

Q. Did you consult with anybody in coming up with that value for your time? 10:44:21 10:44:24

A. I did. 10:44:27

Q. Who? 10:44:27

A. My daughter. She's in finance. 10:44:28

Q. Well, okay. There were a series of invoices provided, and instead of marking each of them individually, we created a summary, which is Exhibit 9. 10:44:35 10:44:41 10:44:45 10:44:48

(Exhibit 9 Summary of Invoices marked for identification.) 10:44:49 10:44:49

Q. There is actually a copy of it in front of you. 10:44:49 10:44:51

A. Yes. 10:44:52

Q. Does the summary, does it appear accurate? 10:44:53 10:44:59

MR. HYNES: I will note that he hasn't had a chance to go back through each invoice and compare. 10:45:00 10:45:01 10:45:03

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But you can answer. 10:45:05
A. It should be, because I recognize 10:45:07
that is the invoice I sent. 10:45:10
Q. In total since March 6th of this 10:45:14
year, up to this date or the last invoice is 10:45:27
June 24th, you've billed 322.9 almost 323 total 10:45:32
hours? 10:45:40
A. Yes, I did. 10:45:40
Q. For these entries -- this entry of 10:45:41
May 30th of 2024, were you billing $800 an hour to 10:45:49
sit in the courtroom and watch Dr. Longo's 10:45:58
testimony? 10:46:02
A. I believe I did. 10:46:02
Q. Your report in this case was 10:46:05
completed or issued on May 21st. Here. It's 10:46:11
Exhibit 3. It's dated May 21st. Do you see that? 10:46:19
A. Mm-hmm. 10:46:24
Q. So leading up to May 21st, I can 10:46:25
understand the work that you were conducting to put 10:46:37
together your report. What is taking up your time 10:46:41
since May 30th for these entries of 12 hours, 12 10:46:46
hours, 12 hours? What does that involve? What have 10:46:51
you been doing? 10:46:56
A. I believe I am still review the 10:47:01

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material at hands and also issues related to my MDL 10:47:05
report. Okay. 10:47:14
Q. Okay. Your total billing since March 10:47:16
of this year through June 24th has been $258,240, 10:47:20
correct? 10:47:26
A. Correct. 10:47:26
Q. With the exception of March, every 10:47:27
single month you've billed in excess of $65,000? 10:47:34
A. Correct. 10:47:39
Q. All right. Oh, Mr. Douglas, Michael 10:47:40
Douglas, this person to whom this -- from whom this 10:48:01
email is from, exhibit -- I'm sorry -- in Exhibit 8, 10:48:06
have you ever spoken with him? 10:48:12
A. Yes, I did. 10:48:16
Q. Okay. About what? 10:48:17
A. About -- I think the purchase of 10:48:20
polarized microscope, which is the seller is in 10:48:28
Connecticut, ask him to arrange transportation to 10:48:32
bring that microscope to New York City. Okay. 10:48:39
Q. Purchase the polarized light 10:48:46
microscope for what purpose? Don't you already have 10:48:49
one of those? 10:48:53
A. Well, the one I had was not very 10:48:53
good. I purchased an Olympus BH-2, which used to be 10:48:58

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the working horse for the asbestos lab. That's a 10:49:04
pretty decent microscope. I want one so that it's 10:49:07
better if I want to exam some samples at home. 10:49:14
Okay. 10:49:19
Q. Did King & Spalding purchase that? 10:49:19
A. No. I did. 10:49:22
Q. You purchased it. What did that 10:49:23
microscope cost? 10:49:25
A. I remember it's 1500. 10:49:26
Q. 1500 or 15,000? 10:49:30
A. No. 1500 and I have my credit card 10:49:31
charge. 10:49:38
Q. Sure. Did you participate with the 10:49:39
attorneys for Johnson & Johnson in preparing 10:49:46
questions to ask Bill Longo in his hearing? 10:49:49
A. I don't think so because I came back 10:49:57
on the 27th from China. The hearing is 29th and I 10:50:01
don't think so. 10:50:11
Q. Did you participate with lawyers from 10:50:11
Johnson & Johnson in preparing questions for Paul 10:50:14
Hess's deposition taken yesterday? 10:50:18
A. I think we talk about that but not 10:50:29
necessarily like say the question to be asked. 10:50:32
Okay. But I did mention the problem in the MS 10:50:39

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report of the PLM analysis, the problem of the 10:50:46
analysis. Now, if the analysis was done by Paul 10:50:51
Hess, then it must be the problem about his 10:50:57
analytical skill, things like that. Yeah. 10:51:03
Q. When you say problems, we are going 10:51:09
to talk about these eventually at some point we will 10:51:11
get to it. But that would include problems with the 10:51:15
lighting, problems with the field of view? 10:51:18
A. Mm-hmm. 10:51:23
Q. I'm sorry. You have to say yes or 10:51:24
no. 10:51:26
A. Yes. 10:51:27
Q. I'm sorry. Problems with the size 10:51:27
distribution? 10:51:31
A. Yes. 10:51:33
Q. I think those are the big ones. Am I 10:51:34
missing a big one? 10:51:40
A. Or so the distorted dispersion 10:51:42
staining color. 10:51:46
Q. The focus with the reflection effect? 10:51:47
A. Yeah. 10:51:51
Q. Right? 10:51:52
A. Yeah. 10:51:53
Q. Okay. Did you evaluate Mr. Hess's 10:51:53

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responses to any of those criticisms in his deposition yesterday? 10:52:00 10:52:04
A. No, but I was attending so I'm aware of his answers, yeah. 10:52:06 10:52:12
Q. For example, when we get to talking about the lighting associated with the analysis that was performed, you're aware that these microscopes have a lighting adjustment knob, correct? 10:52:14 10:52:16 10:52:20 10:52:24
A. Correct. 10:52:28
Q. And you're aware that lighting can be digitally manipulated after the fact through digital software, correct? 10:52:28 10:52:32 10:52:37
MR. HYNES: Vague, overbroad. 10:52:43
He can answer. 10:52:46
A. Are you talking about the micrograph or the time the field of view when he is conducting the analysis? 10:52:48 10:52:52 10:52:59
Q. Both very good questions. Before I get into the details on this, I'm asking generally. 10:52:59 10:53:02
A. Okay. 10:53:06
Q. You're aware that images can be artificially brightened or dimmed using software like PowerPoint or Photoshop or things of that nature? 10:53:07 10:53:10 10:53:14 10:53:17

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A. Yes, of course. 10:53:17
Q. Of course. Did you evaluate Mr. Hess's responses in the deposition where he testified under oath that the PLM when he conducted the analysis was at its full brightness? 10:53:19 10:53:23 10:53:27 10:53:33
A. Was what? 10:53:36
Q. Was at its full brightness. 10:53:38
A. I was aware his testimony, but since I used that microscope myself, so I believe what he said was not true. 10:53:42 10:53:47 10:53:54
Q. When is the first time you used, quote, unquote, that microscope? 10:53:56 10:54:00
A. That was on the 15th of last month, June 15th. 10:54:02 10:54:06
Q. Okay. So the first time you used the what you believe to be the same microscope that Mr. Hess used was after you had authored your report in these cases? 10:54:07 10:54:10 10:54:13 10:54:16
A. Correct. 10:54:19
Q. In fairness to you, this next question has no natural place anywhere in my outline, so this is an out-of-left-field question. I need to prepare you for that. 10:54:38 10:54:40 10:54:45 10:54:48
What is the tensile strength of 10:54:50

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chrysotile? 10:54:54
A. Could I look my report? 10:54:56
Q. Mm-hmm. 10:54:58
A. The tensile strength of chrysotile according to the literature is 1.1 to 4.4 gigabars. 10:55:25 10:55:29
Q. What page are you looking at on your -- 10:55:43 10:55:45
A. I am looking at page 40. 10:55:46
Q. 40? Is the page on the screen right now the page that you're referencing? 10:55:49 10:56:19
A. That is the talc. The previous. 10:56:22
Q. I'm sorry. 10:56:25
A. Yeah, yeah, I'm referring this page. 10:56:26
Q. Okay. I got you. It's paginated 40 in Exhibit C. It's page 60 in the pdf of Exhibit 3 just for the record. Okay. 10:56:28 10:56:32 10:56:38
Is there any way to measure the tensile strength of chrysotile with a microscope? 10:56:42 10:56:45
A. No. 10:56:50
Q. Let me ask you now about your interactions with Ann Wylie, all right? 10:57:03 10:57:18
A. Yes. Okay. 10:57:22
Q. I'm not going to ask you about that right now. 10:57:24 10:57:27

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A. Okay. 10:57:28
Q. When did you first meet Dr. Wylie? 10:57:30
A. On the I think 28th of May at the hearing in New Brunswick. 10:57:36 10:57:45
Q. Do you know of Dr. Wylie prior to meeting her in person? 10:57:50 10:57:54
A. Yes. 10:57:55
Q. What did you know about Dr. Wylie prior to meeting her? 10:57:57 10:57:59
A. First, I think she's a famous professor at University of Maryland. Also I had another professor, Mr. Luke Chang. Luke Chang was Ann Wylie's college at the same geology department. So I was friends with friends with Professor Luke Chang. And he talked about Ann Wylie, saying he is working same field. He is mineralogist, very accomplished mineralogist. Also when I was reading literature, I think he publish a paper with Jennifer Verkouteren NIST about amphibole so I was aware of it, aware of her. 10:58:01 10:58:07 10:58:13 10:58:21 10:58:29 10:58:34 10:58:41 10:58:46 10:58:51 10:58:55 10:59:15
Q. You had mentioned somebody who is associated with NIST, which is NIST? 10:59:18 10:59:19
A. Yeah. 10:59:23
Q. Who was that? 10:59:23

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A. That's Jennifer Verkouteren. She is a researcher at NIST. Also a mineralogist. Okay.
Q. Do you know anything about Ann Wylie's affiliation with a trade organization known as The National Stone and Sand Gravel Association?
A. No, I don't.
Q. Stone Sand and Gravel. I'm sorry.
A. No.
Q. You don't know anything about her association or affiliation with that group?
A. No. Okay.
Q. Do you know anything about Ann Wylie's affiliation with a talc mining concerning referred to as Vanderbilt minerals?
A. No.
Q. Do you know anything at all about the mineralogy of talc located in Upstate New York?
A. No.
Q. Do you know anything about Ann Wylie's advocacy for reclassifying asbestos articles as non-asbestiform or asbestiform?
MR. HYNES: Objection to form. Argumentative.
You can answer.

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A. No, I don't.
Q. Do you know anything about Ann Wylie's testimony to Congress relative to the 1992 OSHA regulations --
A. Not at all.
MR. HYNES: Let him -- sorry. Let him finish the question.
THE WITNESS: Okay.
(Exhibit 10 Collection of Correspondence between Su and Dr. Wylie marked for identification.)
Q. Exhibit 10 is an email -- it's two pages. It's two emails from you to Dr. Wylie.
A. Correct.
Q. The first one here was sent June 1st of this year 2024. And there is a series of seven attachments.
A. Mm-hmm. Yes.
Q. It says [Reading] It was a great pleasure to meet you in person. Here are the matching wavelengths to refractive index or RI conversion tables for Cargille and DRIMMC oils.
We will talk about those in a second. Then you attach some of your recent papers, fair? Yes?

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A. Yes, yes.
Q. You conclude here by saying [Reading] I think the lawyers involved should benefit from a one-day training session with the two of us to ensure they understand the basic chrysotile and talc analysis by polarized light microscopy needed in litigation. Thanks, Shu-Chun.
A. Yes.
Q. I am going to ask a very pointed question that sounds insulting. I mean it literally but it sounds insulting. I am telling you that up front.
A. Okay.
Q. What do you know about litigation?
MR. HYNES: Objection; vague. Overbroad.
A. I think the litigation is the dispute whether there is asbestos mineral, like chrysotile, in the baby powder product. I believe that issue I have been providing my consulting about. That's my understanding.
Q. Do you know what experience Dr. Wylie has relative to polarized light microscopy?
A. I think I know she was teaching the

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course in University of Maryland.
Q. Have you scheduled this one day training or is this progressed in any way to where you are preparing to conduct a training session for attorneys to teach them information that you think might be important to them?
A. No, because Ann Wylie, she was not responsive. Okay.
Q. Not responsive in what sense?
A. To my suggestion in this email.
Q. Do you mean she told you no or do you mean that she just hasn't responded?
A. She did not respond to that. He [sic] only replies thank you for my paper. He [sic] never mentioned whether she agree about this training I mentioned.
Q. Okay. The response here -- this is the second page -- says [Reading] Thank you, Shu-Chun. I appreciate these very much. Best regards, Ann.
A. Mm-hmm.
Q. You have to say "yes" or "no."
A. Yes.
Q. I hate it too.

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A. I'm sorry. That's the first time I do this deposition. 11:04:26 11:04:27
Q. Of course. It's awful. I know what you meant but. 11:04:28 11:04:32
Have you had anymore communications of any kind with Dr. Wylie, spoken or in writing? 11:04:37 11:04:39
A. No. 11:04:44
Q. All right. So that was it. After her email on June 1st of this year, you have not spoken with Dr. Wylie at all? 11:04:50 11:04:57 11:05:00
A. No, not at all. 11:05:03
Q. Do you know she gave a deposition in this case, in Kayme Clark's case and in the MDL? Are you aware of that? 11:05:08 11:05:10 11:05:15
A. I am aware of that. 11:05:16
Q. Did you read it? 11:05:17
A. No. 11:05:18
Q. You attached to this two documents, which you provided to me. I am going to have them marked here. 11:05:26 11:05:31 11:05:33
The first one is going to be Exhibit 11. This is a reference sheet. It's 34 pages long. But it's the selection of DRIMMC immersion liquids for asbestos analysis. That's the 11:06:08 11:06:10 11:06:16 11:06:21

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Delaware Research Institute For Minerals. 11:06:26
A. Material. 11:06:30
Q. Do you know what it stands for? 11:06:30
A. I think it's Delaware Research Institute of Material -- Mineral and Material Characterization. I find difficult to pronounce that word after my stroke. 11:06:31 11:06:35 11:06:46 11:06:53
Q. I'm sorry. I wasn't trying to put you on the spot. 11:06:55 11:06:56
A. Okay. 11:06:58
(Exhibit 11 DRIMMC Asb RI Conversion Tables 34 pages 2022 marked for identification.) 11:06:19 11:07:00
Q. DRIMMC and Cargille are two of the companies that manufacture what are referred to as standards or standard oils used for the process of polarized light microscopy, true? 11:07:00 11:07:04 11:07:07 11:07:12
A. Yes. 11:07:14
Q. What I was going to ask about -- before I do that, Exhibit 12 is the same -- similar document, but it's the Cargille liquids. 11:07:15 11:07:19 11:07:24
A. Yes. 11:07:28
(Exhibit 12 Cargille Asb RI Conversion Tables 34 pages 2022 marked for identification.) 11:07:28 11:07:29
Q. So for both Exhibits 11 and 12, the 11:07:29

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liquids that are listed as appropriate for evaluating chrysotile in the gamma direction include refractive index oils of 1.550 and 1.560? 11:07:41 11:07:46 11:07:52
A. Correct. 11:08:00
Q. Correct. I need to rename this real quick. 11:08:00 11:08:17
(Exhibit 13 The Dispersion Staining Technique and Its Application to Measure Refractive Indices of Nonopaque Materials With Emphasis on Asbestos Analysis marked for identification.) 11:08:22 11:08:28 11:08:33 11:08:37
Q. Exhibit 13 is a 2022 peer-reviewed paper that you authored called The Dispersion Staining Technique and Its Application to Measure Refractive Indices of Nonopaque Materials With Emphasis on Asbestos Analysis, correct? 11:08:22 11:08:25 11:08:28 11:08:31 11:08:35
A. Yes, that's my paper. 11:08:38
Q. There is a quotation in this paper that I know you're familiar with by this point. 11:08:40 11:08:43
A. Yeah. 11:08:46
Q. In the Section 3 that says "Select a proper refractive index liquid to mount the samples," there is a statement in here where you state [Reading] The rule of thumb is to choose a refractive index liquid as close as possible to the 11:08:47 11:08:51 11:08:55 11:08:58 11:09:02

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refractive indexes that will be measured. For example, there are chrysotile minerals whose refractive indexes are significantly higher than those of the standard chrysotile from the NIST, N-I-S-T, SRM 1866 set. In that case, 1.555 or 1.560 instead of 1.550 refractive index liquids should be used to determine gamma. 11:09:06 11:09:11 11:09:14 11:09:17 11:09:22 11:09:34 11:09:41
Do you see that? 11:09:44
A. Correct. 11:09:44
Q. A couple of questions related to this: 11:09:44 11:09:48
Chrysotile is a family of minerals depending on where it comes from may have a different refractive index than chrysotile from another place in the world, correct? 11:09:51 11:09:54 11:09:58 11:10:01
A. Correct. 11:10:03
Q. Chrysotile taken from Canada, for example, may have a different refractive index than chrysotile taken from somewhere else, correct? 11:10:03 11:10:10 11:10:13
A. Correct. 11:10:16
Q. Chrysotiles refractive indices are expressed as a range because they're known in nature to occur in a range, correct? 11:10:16 11:10:22 11:10:24
A. Correct. 11:10:27

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Q. In your opinion, what is the range of refractive indexes for chrysotile in the gamma direction? 11:10:35 11:10:40 11:10:44

A. Then I would have to refer to the EPA documents 600 93 test method. I believe it was Table 2.2, the listed the range of the 6 asbestos minerals refract index in that table. Yes, this is the table. 11:10:48 11:10:53 11:11:07 11:11:17 11:11:25

Q. Yes. So this is Exhibit 14. This is the 1992 [sic] EPA R-93 600 Test Method. 11:11:26 11:11:31

(Exhibit 14 1993 EPA R-93 600 Test Method marked for identification.) 11:11:40 11:11:41

Q. In your opinion, the ranges for chrysotile in gamma, which is the -- under the refractive indices column. It's the second Greek letter. 11:11:41 11:11:45 11:11:51 11:11:56

A. Yes. 11:11:56

Q. Range from 1.517 all the way up to 1.567. 11:11:57 11:12:03

A. Yes. 11:12:07

Q. Okay. Is this your only reference point? 11:12:07 11:12:15

A. Yes. 11:12:17

Q. Okay. Have you ever seen chrysotile with a refractive index above 1.6 in gamma? 11:12:19 11:12:23

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A. Only the Calidria. It's gamma is 1.750 or 1.760 or 1.561. That's my measurement. 11:12:31 11:12:37

Q. That's your measurement? 11:12:48

A. That's right. Also the reference value in the NVLAP proficient testing. 11:12:50 11:12:53

Q. Yeah, you're testifying of Calidria was conducted in June of this year, correct? 11:12:59 11:13:05

A. Correct. 11:13:08

Q. Is that the first time you've ever analyzed a sample of what you believe to be Calidria? 11:13:09 11:13:11 11:13:13

A. Yes, that's the first time I personally analyze it. 11:13:15 11:13:18

Q. The origin of the Calidria that you analyzed, it was provided to you by Matt Sanchez, correct? 11:13:20 11:13:24 11:13:29

A. Actually, it was Professor Gunter. He sent his sample to Mr. Sanchez and Mr. Sanchez brought that sample to Pittsburgh. I said I want to analyze them. That's SB-210 grade. 11:13:31 11:13:38 11:13:45 11:13:51

Q. That's SG? 11:13:56

A. SG-210, yeah. 11:13:58

Q. The samples that were sent to you -- 11:14:01

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this will be Exhibit 15. This is a collection of 26 photos. 11:14:04 11:14:07

(Exhibit 15 Collection of Containers Sent to Su marked for identification.) 11:14:08 11:14:08

Q. The samples that were sent to you -- this is not the SG-210 -- but came to you in these plastic containers of different colors, correct? 11:14:08 11:14:12 11:14:16

A. Mm-hmm. 11:14:20

Q. I'm sorry. You have to go with "yes" or "no." 11:14:21 11:14:23

A. These are the sample I analyzed in Pittsburgh. 11:14:24 11:14:29

Q. These photographs were produced to us in a folder that was labeled sent to Su, meaning that these -- well, I'm inferring -- anybody can title a folder anything they want. Just from the title of it, I presume these were sent to you. 11:14:32 11:14:36 11:14:45 11:14:49 11:14:53

A. Correct. 11:14:57

Q. Were they sent to you in these containers? 11:14:57 11:15:00

A. Yes. I have it. 11:15:01

Q. Great. Were they sent to you already mounted on slides? 11:15:03 11:15:06

A. These are the slides I analyzed in Pittsburgh after the completion of the work. I said I want save those slides so please collect them, pack them and send that to me. 11:15:08 11:15:12 11:15:19 11:15:27

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Q. I am glad that you saved them. But my question was a little bit different. These arrived to you as prepared slides, correct? 11:15:29 11:15:31 11:15:34 11:15:38

A. Actually, we prepare -- I prepare some of them in the lab before I analyze them. 11:15:40 11:15:44

Q. So, for example, the photograph that we are looking at right here, which is page six of Exhibit 15, that's the photograph that we are looking at. It says SG-210, 1.550. 11:15:51 11:15:53 11:15:57 11:15:59

A. Correct. 11:16:05

Q. And this is how you received it, correct? It was in this container when you received it? 11:16:05 11:16:07 11:16:10

A. Yes. 11:16:11

Q. The labeling indicates that this had already been mounted in 1.550 oil, right? 11:16:11 11:16:14

A. That was mounted on the day of my analysis. 11:16:20 11:16:27

Q. Who did that? 11:16:27

A. I believe it's Monica at RJ Lee. 11:16:29

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Q. Is she a scientist or lab technician? 11:16:38
Who is she? 11:16:40
A. She is an analyst, she is 11:16:41
accomplished analyst. 11:16:43
Q. What is purported to be SG-210 here 11:16:50
is something that was provided to your understanding 11:16:54
from Mickey Gunter to Matt Sanchez to you? 11:16:56
A. Correct. Or so I heard Mickey 11:17:02
Gunter's SG-210 was provided by Dr. Longo. 11:17:07
Q. Okay. So it's your belief that the 11:17:12
SG-210 was the same SG-210 that Dr. Longo previously 11:17:15
provided to Mickey Gunter? 11:17:20
A. Yes, that's my understanding. 11:17:23
Q. And you have not looked at Mickey 11:17:26
Gunter's analysis of this same material? 11:17:28
A. No. 11:17:31
Q. Why not? 11:17:31
A. You see, I don't think it's necessary 11:17:33
for me to look at that. I want look that myself. 11:17:36
Q. The refractive index of in Gamma, the 11:17:50
highest refractive index that you identified for 11:17:55
Calidria -- repeat it again if you can. 11:17:59
A. Yeah, the highest refract index, the 11:18:01
gamma refract index of the chrysotile I measured. 11:18:05

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Q. Numerically -- 11:18:11
A. Numerically my results is 1.560 or 11:18:13
1.561. 11:18:22
Q. Is that something that you consider 11:18:30
to be at the higher range of what the refractive 11:18:33
index for chrysotile is in the gamma direction? 11:18:37
A. Correct. 11:18:41
Q. Do you have an opinion or have you 11:19:00
ever analyzed the refractive index of chrysotile 11:19:02
originating from Vermont? 11:19:07
A. No. 11:19:12
Q. Let me do a little cleaning up here. 11:19:25
All right. I am going to go back to your Exhibit 3 11:19:31
for a moment. 11:19:35
There is a list of references in 11:19:38
Exhibit 3. At page -- it's paginated as page 3. 11:19:41
It's page 15 of the pdf. There are two books 11:19:52
relevant to asbestos analysis listed here. One of 11:19:57
them is 1989 book Introduction to Optical Mineralogy 11:20:00
by William Nesse or Nesse. The other one is a book 11:20:05
1986 called Optical Mineralogy, 2nd Edition by David 11:20:09
Shelley. Do you see that? 11:20:14
A. I saw that. 11:20:15
Q. Your name is listed on both of these, 11:20:16

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but you were not a coauthor of either of these 11:20:18
books? 11:20:21
A. I indicated that was my review. The 11:20:22
publisher sent me two books for me to review. 11:20:27
Q. Optical Mineralogy, 2nd Edition? 11:20:32
A. Yes, yes. 11:20:35
Q. This is my only copy. I am going to 11:20:36
hand this to you. 11:20:39
A. Okay. 11:20:43
MR. HYNES: Are you marking chapters 11:20:46
or sections? 11:20:49
MR. BRALY: I will put it up on the 11:20:50
screen of what I am actually marking. 11:20:52
Q. I am marking six pages from this 11:21:10
book. Optical Mineralogy by David Shelley as 11:21:13
Exhibit 16. 11:21:16
(Exhibit 16 Optical Mineralogy Six Pages 11:21:17
marked for identification.) 11:21:17
Q. What I wanted to ask you about is 11:21:17
where that blue tab is on the right-hand side of the 11:21:20
physical book, do you want to turn to that? 11:21:22
A. Yeah, I saw that. 11:21:29
Q. There is a section called Mineral 11:21:30
Descriptions. This is in Chapter 9. 11:21:32

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A. Yes. 11:21:36
Q. We get to a section here for 11:21:37
olivines. There is a chart at page 154 that lists 11:21:44
forsterite, chrysotile and other minerals associated 11:21:53
with olivines where the gamma direction, the 11:21:57
refractive index for chrysotile is reflected as 11:22:02
ranging between 1.69 and 1.70. Do you see that? 11:22:06
A. You mean which paragraph? 11:22:21
Q. I am looking at the chart. Figure 11:22:23
9.1. 11:22:27
A. The chart, that is olivine, that is 11:22:28
not chrysotile. 11:22:31
Q. The section below it says chrysotile. 11:22:32
Do you see that? 11:22:37
A. Which section? 11:22:38
Q. Do you mind if I point it to you? 11:22:40
A. Okay. 11:22:42
Q. I will come to you. I am trying to 11:22:43
figure out if I am looking at this correctly. Part 11:22:47
of this is just educating me. See it says 11:22:50
chrysotile right there. Follow the line up for 11:22:53
gamma and it intersects at 1.69 and runs to 1.70. 11:22:55
A. No, that is not the chrysotile 11:23:02
refract index. 11:23:05

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Q. Okay. What is it? 11:23:07
A. It is olivine. Olivine number is 11:23:11
forsterite, the other end member is fayalite. These 11:23:20
are the two end members in mineralogy, like a 11:23:24
mineral series. Okay. That all about olivine. 11:23:29
It's a mineral. 11:23:40
Q. Could I grab that back from you? 11:23:50
A. Yeah. 11:23:54
Q. So it is your testimony then that the 11:24:07
chrysotile referenced here is not the same 11:24:09
chrysotile as what would be in a family like 11:24:12
serpentine; is that right? 11:24:18
A. Correct. 11:24:19
MR. HYNES: Objection. Misstates 11:24:20
testimony. 11:24:22
Q. So the objection kind of through me 11:24:23
off. I want to make sure we are in agreement here. 11:24:27
What is -- when it's referencing 11:24:31
chrysotile, what is that a reference to in this 11:24:35
context? 11:24:40
A. I don't know. I don't know why he 11:24:41
put the chrysotile words in this graph. I have no 11:24:44
idea. 11:24:52
Q. Do you know what? I do. I am saying 11:24:55

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it wrong. I'm saying it wrong. Okay. I think I 11:24:59
can resolve this. I'm just now realizing -- keep in 11:25:07
mind I got this book yesterday -- it doesn't say 11:25:11
chrysotile. It says chrysolite. 11:25:14
A. Okay. It's not chrysotile. 11:25:21
Q. That actually explains what I was 11:25:25
getting at then. That helps me intensely. That is 11:25:27
chrysolite. 11:25:33
This will be Exhibit 17. This is the 11:25:40
same book, just some additional pages. 11:26:23
(Exhibit 17 Optical Mineralogy 12 Pages 11:26:27
marked for identification.) 11:26:27
Q. We looked at that section. I am 11:26:27
going to give you the book back. There is another 11:26:30
section that begins at page 229. Right here. 11:26:32
A. Okay. 11:26:41
Q. This book that you referenced states 11:26:41
that there are three varieties of serpentines, 11:26:51
chrysotile this time exactly spelled chrysotile -- 11:26:54
not chrysolite -- lizardite and antigorite? 11:26:57
A. Correct. 11:27:02
Q. We are talking about the things that 11:27:03
are generally referred to when we are talking about 11:27:04
asbestos at least for chrysotile. 11:27:07

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A. Okay. 11:27:10
Q. Right? 11:27:10
A. Yes. 11:27:11
Q. Yeah. For the properties for the 11:27:11
optical properties, it says that in gamma that these 11:27:15
minerals can range from 1.545 all the way to 1.584. 11:27:20
Do you see that? 11:27:26
A. Yes. I saw that. 11:27:26
Q. And that the birefringences 11:27:28
associated with these falls between .004 to .017. 11:27:31
Do you see that? 11:27:38
A. Correct. 11:27:38
Q. And that there is an inverse 11:27:38
relationship between refractive index and 11:27:40
birefringence values? 11:27:46
A. Correct. 11:27:50
Q. Okay. You can hand that one back. 11:27:50
MR. BRALY: Kevin, what's your 11:28:10
pleasure here as far as -- oh, don't want that. 11:28:11
MR. HYNES: Do you want to go another 11:28:14
15, 20 and maybe break? 11:28:16
MR. BRALY: Sure. Sounds good. I 11:28:20
have an outline and I have already kind of screwed 11:28:46
it all up. I am going to try to pick up where I am 11:28:48

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and see if we can cover some more ground. 11:28:53
BY MR. BRALY: 11:28:53
Q. In your report, in the report that's 11:28:57
in front of you, Exhibit 3, you don't comment on -- 11:28:59
or you don't critique the birefringence calculations 11:29:05
that Dr. Longo performed relative to the minerals 11:29:10
that he was examination, correct? 11:29:14
A. Correct. 11:29:16
Q. Why not? 11:29:17
A. For me, birefringence is not an 11:29:19
issue. Gamma is. Once you get alpha and a gamma 11:29:25
correctly, you got birefringence. So actually we 11:29:30
don't think birefringence is a specific property you 11:29:36
have to measure independently. You measure the 11:29:45
gamma and the alpha that birefringence is 11:29:49
automatically. Therefore, you don't have to 11:29:54
calculate that, because it was defined as the gamma 11:29:59
minus alpha. 11:30:04
Q. Right, which is exactly how Dr. Longo 11:30:05
calculated birefringence, is by taking the gamma 11:30:07
value less the alpha value. 11:30:11
MR. HYNES: Objection. 11:30:14
A. Yes. 11:30:15
MR. HYNES: Misstates Dr. Longo's 11:30:16

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methodology. 11:30:19
MR. BRALY: Not really. 11:30:20
BY MR. BRALY: 11:30:20
Q. You were present for Dr. Longo's 11:30:20
testimony as to how he calculated birefringence, 11:30:22
correct? 11:30:27
A. Yes, I did. 11:30:27
Q. Did you agree with how he calculated 11:30:28
birefringence values? Was it scientifically 11:30:30
accurate in your opinion? 11:30:33
MR. HYNES: Objection to form. 11:30:34
Vague. 11:30:36
A. There are two aspects. The formula 11:30:36
of birefringence, that's one issue, gamma minus 11:30:43
alpha. Another issue is the gamma value, whether 11:30:49
the gamma value is chrysotile or talc. 11:30:56
Q. Yeah. 11:31:03
A. You see? 11:31:05
Q. Understood. Let me be as fair to 11:31:06
this as I can be. I understand that you do not 11:31:09
agree with Dr. Longo's values in the gamma direction 11:31:13
for what he is identifying as chrysotile. I 11:31:18
understand that you don't agree with that. 11:31:22
Presuming the values are correct, did 11:31:24

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he perform the calculation in a scientifically 11:31:28
reliable way for calculating birefringence? 11:31:33
MR. HYNES: Same objection. Vague, 11:31:36
overbroad. 11:31:39
A. I don't think it's meaningless if you 11:31:40
don't have the correct gamma and alpha. That's the 11:31:42
key. Okay. 11:31:47
Q. Okay. Do you agree that subtracting 11:31:49
the maximum gamma less the maximum alpha and the 11:31:53
minimum gamma minus the minimum alpha will give you 11:31:59
a range of birefringence? 11:32:02
A. I disagree. 11:32:05
Q. You do. Why? 11:32:06
A. The concept maximum gamma, minimum 11:32:08
alpha is a confused concept. You see, when we talk 11:32:14
of maximum and a minimum, it's not about single 11:32:22
particle. It's about a group, like chrysotile. You 11:32:29
have location for Vermont, from Canada, from 11:32:34
Arizona, from California. Okay. 11:32:41
Then if we talk alpha. Again, it's a 11:32:44
group of mineral, not individual. For any 11:32:50
individual mineral chrysotile, you have only one 11:32:55
value of birefringence. You have only one gamma and 11:33:01
one alpha. Here is the problem, because I believe 11:33:07

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and also the data showed they misinterpreted the 11:33:15
dispersion staining color. They think a mineral 11:33:20
particle display a range of dispersion staining 11:33:25
color for its parallel direction with the gamma or 11:33:31
so for its perpendicular direction which is alpha. 11:33:35
They interpret that as a range of recur [ph] index. 11:33:40
This is totally wrong. 11:33:46
Q. I feel we are talking about two 11:33:49
different things. One of them what I do understand 11:33:50
to be a criticism of yours about their findings, 11:33:54
multiple refractive indices within a singular 11:33:58
bundle, which is what I think you're talking about. 11:34:02
A. Yes. 11:34:05
Q. I am asking about something a little 11:34:05
bit more discreet. 11:34:08
Back to Exhibit 14 this is the EPA 11:34:10
493 we see a range of birefringence reported as 11:34:13
between .004 to .017 for chrysotile. 11:34:17
A. Correct. 11:34:23
Q. And that's the same range of 11:34:23
birefringence -- 11:34:25
A. In the book. 11:34:27
Q. -- in the book, right? 11:34:28
A. Yes. 11:34:29

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Q. Okay. So it is fair to say that the 11:34:30
birefringence values associated with chrysotile fall 11:34:34
between .004 and .017? 11:34:40
A. Correct. 11:34:44
Q. All right. And birefringence by the 11:34:45
way is a unit list number. It has -- it doesn't 11:34:47
have units? 11:34:50
A. No. 11:34:51
Q. The birefringence associated with 11:34:55
talc is generally higher than this? 11:34:58
A. Much higher. 11:35:00
Q. Give me a range of the birefringence 11:35:02
you associate with talc. It may be here actually. 11:35:06
A. I think the best literature is Dr. 11:35:12
Gunter's on 2022 paper. He was the first who 11:35:17
measured 20 talc from different localities where he 11:35:25
can collect the sample. So he listed a range for 11:35:32
each talc, you have alpha, now you have a gamma. 11:35:38
But the average alpha I believe is around 1.50 -- 11:35:43
1.540. The average of gamma in his paper is 1.85, 11:35:53
if I remember correctly. So the difference between 11:36:01
gamma and alpha on the average for talc is somewhere 11:36:07
under .045. That we talk about that the range of 11:36:15
the birefringence about chrysotile an EPA method. 11:36:23

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But for each individual samples, they have individual value of the birefringence. 11:36:31 11:36:36

Q. I understand what you're saying. If your evaluating a singular fiber of chrysotile and you're calculating the refractive index for that fiber, you can get a singular measurement for gamma and alpha and calculate a singular birefringence value? 11:36:40 11:36:43 11:36:47 11:36:50 11:36:53 11:36:58

A. That's correct. 11:36:59

Q. For something like what's present here in Exhibit 14 -- again, this is page 26 of Exhibit 14. This is EPA R-93. When you're dealing with a range of multiple fibers or multiple measurements, you can get a range of birefringences? 11:37:00 11:37:02 11:37:07 11:37:14 11:37:19

A. Correct. 11:37:24

Q. Mathematically, when you have ranges like this, you would calculate the range of birefringence in this case like what we see on the page here, by taking the maximum high end and the maximum -- high end of gamma, subtracted by the high end of alpha, and the low end of gamma subtracted by the low end of alpha as they did in this example? 11:37:24 11:37:28 11:37:31 11:37:36 11:37:40 11:37:44 11:37:47

A. Yes. 11:37:51

Q. Okay. The range for birefringence -- 11:37:52

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by the way, you agree with that, right, when you're dealing with ranges? 11:37:59 11:38:03

A. Agree. 11:38:04

Q. Yes. Good. When you're dealing with birefringence for chrysotile, you will get numbers that range from .004 up until around .017? 11:38:04 11:38:07 11:38:10

A. Correct. 11:38:17

Q. Understanding that any individual fiber or bundle will have its own discrete birefringence value? 11:38:17 11:38:20 11:38:23

A. Between these two values. 11:38:24

Q. Right. I apologize. I was probably doing too many things at one time. For talc, what is the range of birefringence that you associated with talc? 11:38:26 11:38:30 11:38:34 11:38:37

A. I will referred to that table. It's somewhere I think between .04 to .05. 11:38:40 11:38:45

Q. Okay. So somewhere around four to five times higher? 11:38:51 11:38:54

A. Yeah, that's about 10 times higher than the chrysotile. 11:38:55 11:38:58

Q. I have a section that I want to cover and I think it will be probably be time for lunch, okay? 11:39:26 11:39:29 11:39:32

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A. Yes. 11:39:32

Q. Your opinion about Dr. Longo's finding of chrysotile in Johnson & Johnson's talc is that what he's reporting as chrysotile is not chrysotile? 11:39:33 11:39:41 11:39:45 11:39:48

A. No. 11:39:48

Q. Okay. I mean that is your opinion, correct? 11:39:49 11:39:51

A. That's right. 11:39:52

Q. Yes. Okay. Are you aware or have you been told that Dr. Longo is not the only scientist who has found chrysotile in Johnson & Johnson's powder? 11:39:52 11:39:58 11:40:02 11:40:05

A. I was aware I think there is a -- now which agency is that? EPA or -- 11:40:08 11:40:16

Q. FDA. 11:40:20

A. FDA. Yeah. I know it was sample analyze by a lab in Maryland. Okay. I have been to that lab. I was aware they found asbestos in the sample. 11:40:21 11:40:25 11:40:30 11:40:35

Q. You're talking about the AMA? 11:40:36

A. AMA. 11:40:38

Q. Yeah. Were you aware of this prior to being retained by Johnson & Johnson as an expert? 11:40:39 11:40:43

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A. I never look into that before my involvement, but after I was retained as an expert witness, I was reading literature, then I came up to that AMA. It's appendix for the FDA kind of report, yeah. 11:40:49 11:40:54 11:41:02 11:41:09 11:41:17

Q. Is this literature that was provided to you by Mr. Hynes? 11:41:20 11:41:21

A. No. That's -- I was -- I was review -- looking the literature related to this topic. 11:41:23 11:41:29 11:41:32

Q. I could be wrong about this, but I don't know if the AMA results were ever published in the peer-reviewed literature. It may have been -- 11:41:34 11:41:38 11:41:42

A. It's on the internet. 11:41:44

Q. So you were just doing basically a Google search about -- 11:41:45 11:41:47

A. That's right. 11:41:49

Q. Got you. You came across the AMA findings from a couple years ago? 11:41:49 11:41:52

A. No. This year. 11:41:56

Q. No, no, no. Their findings were from a couple years ago? 11:41:58 11:42:01

A. Yes. 11:42:02

Q. I'm sorry. That was confusing. 11:42:03

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That's something that you discovered after you became an expert -- or after you agreed to serve as an expert witness? 11:42:05 11:42:07 11:42:12

A. Correct. 11:42:13

Q. That was part of your review that accounted for some of that billing that we looked at before? 11:42:13 11:42:15 11:42:17

A. Yes. 11:42:18

Q. Right. Are you aware that McCrone, as a hired lab for Johnson & Johnson, found chrysotile in Johnson & Johnson's Baby Powder? 11:42:18 11:42:24 11:42:27

A. That, I am not aware. 11:42:32

Q. Are you aware that the Colorado School of Mines found chrysotile in Johnson & Johnson's Baby Powder? 11:42:34 11:42:37 11:42:41

A. That literature I read. I was aware. 11:42:41

Q. Are you aware that NIOSH, the National Institution of Occupational Safety and Health, through a series of contractors found chrysotile in Johnson & Johnson's Baby Powder? 11:42:46 11:42:49 11:42:52 11:42:55

A. No, I don't. 11:42:57

Q. Are you aware that Art Langer found chrysotile in Johnson & Johnson's Baby Powder? 11:42:58 11:43:00

A. No. 11:43:03

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Q. Are you aware that RJ Lee found chrysotile in Johnson & Johnson's Baby Powder? 11:43:03 11:43:06

A. No. 11:43:09

Q. You didn't know that? 11:43:09

A. No. 11:43:10

Q. They didn't tell you that? 11:43:10

A. No. 11:43:11

Q. Didn't bother to mention it to you while you're looking at all these things? 11:43:12 11:43:14

A. I did come across. I did Google search. I did not come up with any document saying RJ Lee has found the, like you said, the asbestos in baby powder. No, I don't. 11:43:16 11:43:20 11:43:25 11:43:31

Q. You understand that Bryan Bandli and Matt Sanchez, they work for RJ Lee? 11:43:33 11:43:37

A. I do. They never told me. 11:43:40

Q. Right. Are you aware that Johnson & Johnson's suppliers, including supplier generally referred to as Imerys or Rio Tinto found chrysotile in the supply for baby powder? 11:43:42 11:43:48 11:43:52 11:43:56

A. No, I am not aware. 11:44:02

MR. BRALY: Kevin, this is a good a time as any. 11:44:23 11:44:25

MR. HYNES: Should we break for lunch here? 11:44:26 11:44:28

MR. BRALY: Yes. 11:44:29

(A luncheon recess was taken.) 12:25:18

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AFTERNOON SESSION 12:25:18

12:28:11

BY MR. BRALY: 12:28:11

Q. Welcome back from lunch. 12:28:18

A. Thanks. 12:28:21

Q. I hope that was -- you had a nice break. And just keep in mind that you need to -- if you want to take a break or something, just to stretch -- 12:28:21 12:28:23 12:28:28 12:28:32

A. I will let you know. 12:28:32

Q. Please do. 12:28:33

A. So far, I'm okay. 12:28:34

Q. Great. We had looked at what's -- should be on your screen right here about samples, 26 pages of samples that came from a folder that was labeled "Sent to Su." That includes all of these similar-looking containers with different labels on them. For example, the second page of this says .560 HD Valadez with and it gives a number M12001 CTL? 12:28:36 12:28:40 12:28:45 12:28:49 12:28:54 12:28:58 12:29:02 12:29:11

Were all of these containers provided to you by Matt Sanchez? 12:29:11 12:29:15

A. Yes. Again, these are the samples I analyzed. 12:29:18 12:29:25

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Q. Yes. These are all part of the samples that you analyzed in June with Matt Sanchez and Bryan Bandli?
A. Correct.
Q. And then you've provided those samples to us in the materials provided prior to this deposition?
A. Say again.
Q. All of your images from the samples were provided?
A. Yes.
Q. Yeah. So I was going to ask you about some of these. Some of these samples involve what is purported to be SG-210 mounted in 1.550 oil. There is another one in 1.560.
A. Correct.
Q. So I have some of these images. I wanted to mark those images as exhibits as we go forward here. I am going to start with -- if I can get this to work -- what is going to be Exhibit 18.
(Exhibit 18 Sample CDCS 1.550 with SG-210 Alpha marked for identification.)
Q. Exhibit 18 is a single photo that's marked as a number followed by CDCS 1.550 with

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SG-210 alpha.
A. Correct.
Q. So this is a photo of that SG-210 in the alpha direction or the perpendicular direction under polarized light, correct?
A. Correct.
Q. In 1.550 refractive index liquid?
A. The number preceding that, 3183377, indicates that is Valadez talc baby powder. That baby powder was spiked with SG-210 I look at that sample.
Q. Are you sure about that?
A. Yes, I'm sure.
Q. Okay. So this is not an analysis of just straight unadulterated SG-210. This is a spiked sample of the Valadez baby powder?
A. Correct.
Q. Okay. This might be a dumb question, but how do you know what we are looking at is the SG-210?
A. Because it was prepared with the SG-210 first provided by Dr. Longo to Professor Gunter, then from Gunter to Mr. Sanchez, then Mr. Sanchez brought that sample.

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Q. I guess what I am asking is, how do you know that what you're looking at isn't asbestos that was in the Johnson's Baby Powder absent the spiking?
A. Because the optical property indicates the SG-210 shows a blue central stop disbursing staining color along its gamma direction but lighter than the blue in the gamma direction.
Q. You said gamma twice.
A. No, alpha versus gamma. Alpha is slight lighter. Gamma is deeper blue.
Q. Isn't that also true for just chrysotile?
A. No. The 1866, chrysotile, the distinction between 1866 chrysotile versus the Calidria SG-210 is the gamma direction. I have the micrograph showing that it's magenta in color.
Q. I don't think 1866 has ever been reported to be present in Johnson's Baby Powder. 1866 is a Canadian chrysolite.
A. No, but I said they are spiked sample. They purposely put the 1866 to spike the Valadez baby powder.
Q. I suppose my question remains, is,

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how do you know that what you're looking at is one of the spike fibers and not asbestos that was present in the Valadez baby powder?
A. Because I examine the Valadez sample, pure nonspiked. I did not find any chrysotile structure.
Q. Do you -- so this image -- and this is -- I will just do this:
Let me put up the next image here, which is going to be Exhibit 19.
(Exhibit 19 Sample CDCS 1.550 with SG-210 Gamma marked for identification.)
Q. This is the same sample in the gamma direction, correct?
A. Yes.
Q. Okay. Again, in 1.550 refractive index oil?
A. Yes.
Q. So when you're evaluating the color of this sample, is it your opinion that this color is uniform throughout this image?
A. Uniform for what?
Q. From the edge to the center.
A. No.

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Q. Okay. When using color to identify a central stop dispersion staining reference, where is the appropriate location on a particle in the gamma direction to identify the representative color?

A. I am glad you bring this up. That I want to explain. A structure of a mineral like here is a chrysotile. It's a fibrous, fiber bundle. It's consistent with the fiber oils.

Now, the interface between those fibers will affect the dispersion staining color. Therefore, I think we need to differentiate between the true central stop dispersion staining color which is representative the true refract index of the structure versus those central stop dispersion -- what I call distorted color. Those color is not indicative of the gamma value of the fiber. What I am saying is, even it display a range of color, different color doesn't mean it is a range of refract index. Same is true for 1866 photograph. They show a range of the dispersion staining color, which was interpreted by Dr. Longo as the variation of refract index of the 1866, which is incorrect, because 1866 has a constant value of 1.556 for the gamma direction. Those color which does not

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correspond to 1.556, they are distorted due to the interface condition between fibers. I have graphic to explain the formation of the distorted color.

Q. I believe it's one of your slides?

A. Yeah.

Q. I've seen it. It's not what I am asking you about here. Let's look at Exhibit 19 here. I have tried to enlarge it a little bit.

The fiber, this item that you could see in the horizontal direction here in the center of this, if you look at it in the center, there is some golden color, there is some reddish color. On the edges it's kind of purplish.

When you're -- when you're evaluating what color corresponds to the chart, where do you select the color? On the edges? On the center of the structure? What color do you use when there's multiple colors in a sample like Exhibit 19?

A. Yes. Now, in order to determine which color to be used to derive the refract index of this fiber, first you will have to determine which is the true, I call it true central stop dispersion staining color. The way to distinguish them -- see, this is a McCrone dispersion staining

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objective. It has a three setting. One is central stop. One is annular stop. Another is just -- there is no stop. So in this case when you are in doubt which color is the right one to use, you switch that to the no stop and you close the aperture diaphragm to examine the Becke line.

Q. I was going to talk about Becke lines later. Becke line analysis is a different form of analysis than phase contrast microscopy, correct?

MR. HYNES: Objection to the form.

A. Not phase contrast. There are four method measuring refract index in polarized light microscope. The traditional, the foremost one is Becke line. Later on, there is another method called oblique elimination. However, oblique elimination method is only used for screening purpose to see my liquid is too high or too low until you got the liquid closer to the object, the structure you are measuring. Then you do the Becke line. Becke line is the most accurate method.

Now, later for the asbestos industry, since it's a commercial operation, it's not a research, they can't afford to spend too much time on a sample. So Becke line -- because Becke line

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you have to change the liquid. You put a liquid. You find it's higher than the structure. Now you prepare another sample, use a lower liquid until they got the match. So it's cumbersome. It's time-consuming. It's not for the commercial operation.

Then the third method is the dispersion staining.

Q. Did you perform a Becke line analysis of this particle?

A. I did.

Q. Is that part of your Becke line folder?

A. Not -- which folder --

Q. I'm sorry. I shouldn't have thrown that at you. Is that part of the materials that you produced?

A. Actually, I think in the folder of the glass, I want use the glass, the Cargille glass in 1.55 and 1.560. That folder, I want use the glass to show what it distorted central stop dispersion staining color versus the Becke line. And how do you use Becke line to --

Q. I see, I see that folder. I can talk

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to you about it later. 12:43:55
I am asking specifically with this 12:43:56
SG-210 fiber, did you specifically do a Becke line 12:43:58
analysis of this? 12:44:02
A. Yes, I did. 12:44:04
Q. Is that included in the photos that I 12:44:05
have? I don't know that I have seen that. 12:44:08
A. I did not take the picture, because 12:44:10
it just flip to switch, then you observe. Which is 12:44:13
automatic kind of operation for me. See, I keep 12:44:27
switching between the central stop and Becke line. 12:44:31
Q. Okay. So for this particular fiber, 12:44:37
which color is the color that is the right color in 12:44:45
comparison to the CDCS chart -- CSDS? 12:44:49
A. That is the color corresponding to 12:44:56
the 1.560 refract index. 12:45:01
Q. What color is that? We have, we have 12:45:06
a golden, we have a reddish, we have purple, we have 12:45:12
a little bit of blue in there. What color is the 12:45:15
color that you're then comparing to the CSDS chart? 12:45:19
A. I believe reddish purple. 12:45:25
Q. Okay. So for this fiber that's 12:45:29
Exhibit 19, you're identifying that as corresponding 12:45:33
with reddish purple? 12:45:38

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A. Correct. 12:45:39
Q. Okay. There is no -- there is no 12:45:40
scale bar for this photograph, correct? 12:45:59
A. In this image, it doesn't, but I took 12:46:03
a series image with the scale bar. There is one 12:46:09
sample I prepare the sample on a micrometer. So 12:46:14
it's superimposed on the micrometer to show the 12:46:24
scale of the particle size, which in the photo 12:46:30
probably was named micrometer or something like 12:46:34
that. 12:46:38
Q. So there is -- I am going to show an 12:46:47
image here and ask you if this is the image that 12:47:07
corresponds with that one. 12:47:10
A. Yes. See the background, this is a 12:47:12
sample prepared on the surface of the micrometer. 12:47:16
Q. What I am asking is, is the image we 12:47:22
are looking at -- I am mark this next one as 12:47:25
Exhibit 20. 12:47:27
(Exhibit 20 Micrometer 3183377 at Focus 12:47:27
1.550 Talc Particle marked for identification.) 12:47:28
Q. Is this the same image as Exhibit 19? 12:47:28
A. No. 12:47:32
Q. No? 12:47:33
A. But I am sure we will find an image 12:48:02

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of the micrometer image with the gamma value, gamma 12:48:05
dispersion staining color in central stop dispersion 12:48:13
mode. 12:48:22
Q. Okay. We will look at what we are 12:48:22
going to mark as Exhibit 21. 12:48:25
A. Yes. This is the corresponding 12:48:28
central stop dispersion staining image. 12:48:31
(Exhibit 21 Micrometer 318337 CSDS 1.550 12:49:07
talc particle gamma marked for identification.) 12:49:14
Q. Okay. Let me do this: Okay. So 12:48:36
this image that we are looking at, which is 12:49:02
Exhibit 21, is entitled "Micrometer 318337 CSDS 12:49:05
1.550 talc particle gamma" and this image is what 12:49:13
you were saying is the same image as Exhibit 19? 12:49:20
A. No. This is -- wait a second. You 12:49:24
mean this? I think you show a Becke line image. 12:49:30
That is the same of this. Not the one without 12:49:38
micrometer. No. This is not. 12:49:43
Q. Not this one? 12:49:46
MR. HYNES: Exhibit 20. 12:49:47
MR. BRALY: Exhibit 20 he already 12:49:51
told me wasn't. 12:49:52
A. This is not. Whenever there is no 12:49:53
micrometer in the file name, it is not a sample 12:49:59

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prepared on the micrometer. 12:50:04
MR. HYNES: Show Exhibit 20. 21 and 12:50:10
20 I think relate to one another. 12:50:13
MR. BRALY: They both come from the 12:50:16
micrometer folder. 12:50:18
BY MR. BRALY: 12:50:19
Q. This is Exhibit 20. This is 12:50:19
Exhibit 21. Did you superimpose a micrometer over 12:50:23
Dr. Longo's findings? 12:50:31
A. No. This sample I prepared by 12:50:33
sprinkle the baby powder on the micrometer slide 12:50:40
instead a regular blank slide because I want the 12:50:49
micrometer image showing same time in the field of 12:50:55
view. 12:51:01
Q. The particle that we are looking at 12:51:01
in Exhibit 21, right here, that's golden. Looks 12:51:03
like there might be some greenish lineation and some 12:51:11
reddish on the outside, what is that? 12:51:16
A. These are the distorted dispersion 12:51:20
staining color of the talc elongated talc particle. 12:51:25
Q. So that's talc? 12:51:31
A. This is talc. 12:51:32
Q. Okay. And this is a sample that you 12:51:34
prepared? 12:51:38

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A. Correct. 12:51:38
Q. Okay. Going back to what my question 12:51:39
had been, for Exhibit 19, you do not have a scale 12:51:43
bar for this photograph, correct? 12:51:49
A. Because I am taking the same 12:51:51
objective, does that scale bar applicable to this. 12:51:57
When I -- if I process image, I will type the nature 12:52:04
of the sample and also I will put the scale bar on 12:52:13
the image. But this is the raw data. 12:52:17
Q. Okay. 12:52:23
A. It's not been prosed. I did not have 12:52:23
time to put the scale bar on that image. 12:52:28
Q. Okay. So if we look at Exhibit 21, 12:52:33
the particle on Exhibit 20 -- first of all, the 12:52:37
field of view for Exhibit 19 and Exhibit 21 is the 12:52:41
same field of view, correct? 12:52:44
A. This are two different sample. 12:52:47
Q. Not my question. I understand they 12:52:50
are two different samples. 12:52:52
A. The same field of view, same 12:52:53
objective. 12:52:56
Q. Okay. So if we were to superimpose 12:52:56
the micrometer from Exhibit 21 on to Exhibit 19, 12:52:59
that would be a fair thing to do? 12:53:06

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A. Correct. 12:53:09
Q. Exhibit 19 is an image of a 12:53:10
chrysotile fiber, correct? 12:53:14
A. Correct. 12:53:16
Q. Exhibit 19, this one. Okay? 12:53:17
Exhibit 21 is an image of fibrous talc? 12:53:21
A. Correct. 12:53:25
Q. How close in size are these two 12:53:26
fibers? 12:53:34
A. I think they are close. 12:53:36
Q. They appear to be close, don't they? 12:53:38
A. They are. 12:53:40
Q. One of your criticisms of Dr. Longo's 12:53:44
work that chrysotile fibers in fact don't occur at 12:53:47
the same size. 12:53:51
A. No. If you look the one, the 19 -- 12:53:55
can you put 19? 12:53:59
Q. Yes, sir. 12:54:00
A. You see, this structure is larger 12:54:04
than the talc particle. 12:54:09
Q. Sure. They are not exact matches. 12:54:13
But they are close in size, are they not? 12:54:16
A. You see, if you -- I think the best 12:54:19
example is the USP study. They have two particle 12:54:25

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distribution of the talc versus the chrysotile 12:54:33
spiked in the talc sample. It's two population. 12:54:38
However, the peak of the talc, the particle size is 12:54:44
smaller than the chrysotile average size. However, 12:54:53
the two curve is overlap, which means there are 12:55:00
chrysotile fiber similar or even smaller than this. 12:55:08
However, if you measure all the chrysotile in a 12:55:14
sample, you plot it, it's the particle size is 12:55:20
larger than the talc. 12:55:27
Also, I took some SEM image of the 12:55:31
spiked sample. On the SEM, it's easier to find the 12:55:37
chrysotile compared on the optical microscope. 12:55:48
Q. Is that the wet-sieved -- 12:55:55
A. That label the wet sieve, about 400 12:56:04
mesh sieve, yeah. 12:56:08
Q. Now, all of what we are talking 12:56:11
about, this work here with Exhibits 19, 20, and 21, 12:56:13
Exhibit 18 as well, as well as the files that you're 12:56:17
talking about with the wet-sieved chrysotile, all of 12:56:21
this was done the month after you issued your expert 12:56:25
report in the MDL case and the chemical arts case? 12:56:31
A. Correct. The MDL report was issued 12:56:41
on May the 21st. The work I did is between 15th to 12:56:44
17th of June, the next month. 12:56:53

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Q. I want to continue kind of 12:57:53
identifying various things that you took pictures 12:57:55
of. 12:57:58
Exhibit 22 is an image what is 12:57:58
purported to be this SG-210 chrysotile in 1.560 12:58:03
refractive index liquid, correct? 12:58:09
A. Correct. 12:58:13
(Exhibit 22 3183377 with SG210 chrysotile in 12:58:13
1.560 alpha marked for identification.) 12:58:14
Q. Okay. And again it is your position 12:58:14
or your understanding that what you you've taken a 12:58:21
photo of is the Valadez talc sample spiked with 12:58:25
SG-210? 12:58:29
A. Correct. 12:58:31
Q. What percentage by weight, if you 12:58:31
know, SG-210 was spiked into the sample? 12:58:35
A. I believe it's 1 percent or 12:58:39
.1 percent, either it's 1 percent or .1 percent. 12:58:43
Q. There is a big difference between 12:58:48
those two. 12:58:49
A. That's right. 12:58:50
Q. You don't know? 12:58:51
A. I don't remember. I believe it's 12:58:55
1 percent. 12:58:59

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(Exhibit 23 3183377 With SG210 Chrysotile in 1.560 Gamma marked for identification.) 12:58:59 12:59:01

Q. Exhibit 23 is that same sample but this time 1.560 refractive index fluid, correct? 12:59:01 12:59:09

A. Correct. 12:59:15

Q. So here is where I am going to ask questions about the PLM process that maybe I don't understand fully. Exhibit 19 is the SG-210 and 1.550 RI fluid? 12:59:16 12:59:19 12:59:22 12:59:36

A. Yes. 12:59:39

Q. Exhibit 23 is -- 12:59:40

A. 560. 12:59:42

Q. I hate to be parental about this, but you have to let me finish the question. 12:59:50 12:59:53

A. Sorry. 12:59:55

Q. Exhibit 19 and Exhibit 23, they are not the same fiber, right? 13:00:00 13:00:04

A. No. 13:00:07

Q. Right. I thought so. I just wanted to make sure. Okay. 13:00:08 13:00:11

Now, for Exhibit 23 and the 1.560, again, it appears to be predominantly blue, but there is little blue in the middle and then this blade of yellowish on the outside and this little 13:00:13 13:00:21 13:00:26 13:00:29

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starburst pattern here on the central left side. And then on the edges on the left side, we have a line of red and then some lighter blue and some darker blue even get a little bit of greenish up here in the west, northwest of the structure. 13:00:32 13:00:37 13:00:40 13:00:43 13:00:48

What color do you identify this fiber with for purposes of reference to the CSDS chart? 13:00:53 13:00:57

A. Okay. This photograph actually the fiber is the horizontal section. Okay. They are not continuous to this part. This fiber I am looking at, it's not as I said. It is not continuous to this end. 13:01:02 13:01:08 13:01:16 13:01:22 13:01:28

Q. So because nobody is ever going to know what you're pointing at on the written record, you're saying the section to the right of the eye starburst is the fiber you're evaluating? 13:01:31 13:01:33 13:01:39 13:01:42

A. That's correct. And the color is this deep blue I confirm that by Becke line. 13:01:45 13:01:49

Q. That deep blue color on the southern edge of the fiber is the color that you would identify with that fiber? 13:01:56 13:02:00 13:02:02

A. Correct. 13:02:04

MR. PLACITELLA: Are you able to put the cursor over that? 13:02:05 13:02:06

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MR. BRALY: It wouldn't show up on the record. 13:02:09 13:02:10

BY MR. BRALY: 13:02:42

Q. So as you go from south to north in this middle, section, it goes from dark blue to light blue, to the top you get this greenish reddish menagerie? 13:02:44 13:02:46 13:02:53 13:02:57

A. Yes. 13:02:59

Q. Are you saying that you switched the oculus to remove the central stop to evaluate the Becke line? 13:02:59 13:03:04 13:03:08

A. No. The objective -- 13:03:09

Q. The objective. I'm sorry. 13:03:09

(Reporter asks for clarification.) 13:03:09

THE WITNESS: The dispersion staining, dispersion staining objective. 13:03:16 13:03:18

Q. And by doing that, you could evaluate the Becke line? 13:03:35 13:03:39

A. Correct. 13:03:42

Q. And in evaluating the Becke line, am I correct that you bring the image slightly out of focus to evaluate the border between the fiber and the fluid? 13:03:42 13:03:48 13:03:52 13:03:56

A. No. The Becke line you need to focus 13:03:57

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on that. You did not change the focus. So when I switch between the central stop dispersion staining mode to the Becke line mode you don't change the focus. 13:04:00 13:04:05 13:04:11 13:04:18

Q. Isn't it a critique of using Becke lines to evaluate refractive index that it is not as suitable for smaller particles as it is for larger particles? 13:04:19 13:04:22 13:04:26 13:04:30

A. It depends. When it's not suitable is you cannot determine the movement of the Becke line or to distinguish the Becke line -- see, the Becke line, when the particle and the liquid, when they are very close, then the Becke line dispersed. 13:04:31 13:04:38 13:04:44 13:04:54 13:05:00

So there is a Becke line inside the structure and also there is a Becke line dispersed Becke line outside the structure in the liquid. That is how you used to determine the match which Dr. Bloss book has a famous chart, Becke line chart which people used to determine a match or dis-match, mismatch. 13:05:07 13:05:14 13:05:17 13:05:26 13:05:36 13:05:41

Q. Does this image capture the entire field of view that was being observed through the microscope? 13:06:03 13:06:06 13:06:09

A. Correct. Every image in our database in the raw data we sent to you, they are the full 13:06:09 13:06:15

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image. That's the only way to catch it. 13:06:19
Q. You do understand that you can take a 13:06:24
digital image capture of what's being seen through a 13:06:27
microscope with less than the full field of view, 13:06:31
correct? You understand that's a possibility? 13:06:36
A. There might be possibility. However, 13:06:42
the software come with this like a microscope. I 13:06:46
forgot the name of the software name. Star Wars 13:06:53
era. Anyway, it come with the system, the monitor, 13:06:59
the software image software and the microscope. 13:07:02
There is one complete system. So when you click the 13:07:08
capture image, it capture. 13:07:14
I don't know if they have a function, 13:07:17
for example, the cropped image or not. However, 13:07:23
when we do this analysis for each field of view we 13:07:29
examine, we just click the capture. So it capture 13:07:36
the whole image on the screen. 13:07:41
Q. Okay. So one of the criticisms that 13:07:43
you raised -- and we are going to look at it 13:07:49
later -- had to do with the size of the field of 13:07:51
view for some of Dr. Longo's work? 13:07:53
A. Yeah, correct. 13:07:56
Q. Point in fact is, you don't know if 13:07:57
that image was capturing the entire field of view or 13:08:00

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if it was a cropped image from what was being 13:08:04
displayed on the monitor, correct? 13:08:07
A. I don't know. However, in software 13:08:10
they used to capture the digital image, usually 13:08:17
there is no cropping. There is no cropping. 13:08:26
Q. I appreciate what you're saying -- 13:08:34
A. Another important -- let me finish. 13:08:36
Q. Sure. 13:08:38
A. Another important too is the particle 13:08:39
size in the image, which is provided another 13:08:43
criteria to say is this a full field of view image 13:08:50
or as a cropped image or part of the image. Because 13:08:58
the particle size on the two images, they are not 13:09:05
the same. 13:09:11
Q. So I appreciate what you're saying 13:09:13
about whatever default function for capturing images 13:09:19
are. You actually are unaware if you're able to 13:09:24
crop an image in the software provided with these 13:09:29
microscopes or not as you sit here today, right? 13:09:32
A. No, I don't. I'm not. 13:09:36
Q. You took photos of ten different 13:10:02
particles in a folder with the same number, 3183377, 13:10:05
but this one was called with M12001. 13:10:17
A. Is that under screen? 13:10:24

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Q. It's not. I will drag it over. It's 13:10:25
a folder. These are the folders that you provided. 13:10:31
A. Okay. 13:10:39
Q. Okay? It's a folder called 38 -- 13:10:39
3183377 with M12001.1.550 and then another folder 13:10:51
1.560. 13:11:00
A. Yes. 13:11:03
Q. In the 1.550 you have ten different 13:11:03
particles in alpha and in gamma? 13:11:07
A. Correct. 13:11:10
Q. And the 1.560 folder you have five 13:11:10
different particles in alpha and in gamma? 13:11:14
A. Correct. 13:11:21
Q. What is the M12001? What is that? 13:11:21
A. It is the Coalinga chrysotile from 13:11:25
the RTI. It's a California Calidria chrysotile. 13:11:33
M12001 indicate it is proficient testing code. So 13:11:45
the M represent a PLM. One indicate that the first 13:11:55
one in that year NVLAP issued two proficient testing 13:12:05
every year. One is in the first half of the year. 13:12:14
Two being the second half of the year. Then 2001, 13:12:20
which means that's the year of the test. So M12001 13:12:26
meant it is the first proficient testing conducted 13:12:35
by NVLAP in the year 2001. It is a first time or 13:12:42

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the last time NVLAP use a Calidria chrysotile for 13:12:51
the test. 13:12:59
Q. So the folder with the M12001 is 13:12:59
another -- is it your testimony that that is another 13:13:06
batch of California chrysotile or Calidria? 13:13:09
A. Correct. 13:13:14
Q. Okay. And again, this was something 13:13:20
that you didn't analyze until after you had already 13:13:31
issued your expert report in this case? 13:13:34
A. Correct. 13:13:37
MR. BRALY: I am going to mark as 13:13:53
Exhibit 24, 25 and 26. 24 is going to be titled 13:13:55
Particle 1, M2000 -- M -- yeah, M2001, 1.250 gamma. 13:14:00
Exhibit 25 is going to be Particle 2. And 13:14:19
Exhibit 26 is going to be Particle 3. There are 10 13:14:20
particles, but we are going to look at these as 13:14:24
representative. 13:14:26
(Exhibit 24 Particle 1 M2001 1.250 Gamma 13:14:12
marked for identification.) 13:14:27
(Exhibit 25 Particle 2 M2001 1.250 Gamma 13:14:19
marked for identification.) 13:14:28
(Exhibit 26 Particle 3 M2001 1.250 Gamma 13:14:21
marked for identification.) 13:14:34
Q. Sir, in Exhibit 24, what are you 13:14:34

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identifying here with that arrow? 13:14:48
A. Yeah. This is the Coalinga 13:14:51
chrysotile from California, Union Carbide's. 13:14:56
Q. Is this entire sample Calidria? 13:15:01
A. Yes. 13:15:10
Q. So there's no talc to your knowledge 13:15:12
in this sample? 13:15:16
A. Now I remember. This is the Coalinga 13:15:22
chrysotile-spiked talc, Chinese talc. It's not pure 13:15:29
Coalinga chrysotile. It's a spiked sample. 13:15:39
Q. I'm confused about this because you 13:15:58
have a whole other folder structure that you 13:16:01
produced called Chinese Talc Milled With 1866 13:16:04
Chrysotile and then you have another folder entirely 13:16:09
called Chinese Talc Milled with SG-210 Chrysotile. 13:16:12
That's not what this folder is. 13:16:17
A. But this folder is not SG-210. It is 13:16:21
the RTI, the Coalinga chrysotile. It's two Calidria 13:16:25
chrysotile. 13:16:34
Q. Yes, but what I am saying the folders 13:16:35
that you gave me were not identified as this being a 13:16:37
spiked sample. 13:16:40
A. That probably they did not indicate 13:16:42
in the file name. However, that a two spiked 13:16:47

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sample. 13:16:52
MR. HYNES: I will note for the 13:16:52
record that the folder from which this originated is 13:16:54
3183377 with M12001 1.550. I think Dr. Su's 13:16:56
testimony previously is that 3183377 is the 13:17:09
designation for that Valadez Chinese source. 13:17:27
THE WITNESS: Yeah, that file name 13:17:31
reflect it is NVLAP chrysotile-spiked Valadez talc 13:17:33
powder. Let me make it clear. 13:17:47
BY MR. BRALY: 13:17:53
Q. Until you told me that, how was I to 13:17:53
know that 3183377 was a reference to the Valadez 13:17:57
talc sample that had been spiked? 13:18:03
A. See, the number I believe -- you 13:18:07
should be able to find that in one of Dr. Longo's 13:18:12
report. Yes, the numerical code. 13:18:18
Q. Okay. 13:18:24
A. So when he sent that chrysotile, 13:18:25
Calidria chrysotile to Dr. Gunter, I believe it is 13:18:33
with that number. That's why they continue -- yeah, 13:18:42
I saw something in a document they received a sample 13:18:47
with that number on. 13:18:54
Q. In what you produced to me I don't 13:18:55
know what 3183377 is. There is no indication in 13:18:58

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this file name in any sense of what this is. 13:19:03
A. It is a Valadez sample. 13:19:06
Q. Okay. Well, I know that now. I 13:19:09
appreciate it. 13:19:10
A. Okay. 13:19:13
Q. What is Exhibit 24? What are we 13:19:13
looking at here in the middle of the screen with 13:19:16
that arrow on it? 13:19:18
A. That is a chrysotile, gamma 13:19:22
direction. 13:19:26
Q. Is that a fiber? 13:19:36
A. It is rather dark. It is the fiber. 13:19:46
I think there is a same picture of this fiber in the 13:19:53
alpha direction. I believe the alpha direction 13:20:01
should be clearer. If you find a particle 1 alpha, 13:20:04
can you show that image? 13:20:13
Q. I can. I will need to mark it as a 13:20:15
new exhibit. Give me a second. 13:20:18
A. For each particle, we took a gamma 13:20:20
and alpha. 13:20:24
Q. So this will be Exhibit 27, which is 13:20:28
particle 1 in the alpha direction. 13:20:31
(Exhibit 27 Particle 1 M2001 1.550 CSDS 13:20:34
Alpha marked for identification.) 13:20:38

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A. Yeah. That's very clear. Can you 13:20:38
see the fiber? 13:20:41
Q. No. 13:20:42
A. Do you want me to find it out? 13:20:45
Q. Sure. 13:20:47
A. That I remember. In the alpha 13:20:50
direction, it's more clearer. You see? From here, 13:20:52
up here. 13:21:00
Q. Okay. It's like a blue streak that's 13:21:00
running just to the left of that bright light blue 13:21:05
blob? 13:21:10
A. Correct. 13:21:11
Q. All right. So oriented in the gamma 13:21:12
direction in Exhibit 24, you realize that the arrow 13:21:33
isn't pointing to the -- what you had previously 13:21:36
been indicating? 13:21:40
A. If you look very carefully, it's 13:21:42
pointed to the end of the fiber. 13:21:46
Q. Okay. 13:21:49
A. Yeah. 13:21:50
Q. What color are you associating with 13:21:51
that fiber for purposes of this CSDS chart? 13:21:54
A. Magenta. 13:22:02
Q. That's Exhibit 24. Okay. 13:22:09

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Exhibit 25 is particle 2 still in 1.550 refractive index oil? 13:22:33 13:22:39
A. Correct. 13:22:44
Q. From that same series of the 2001 NVLAP Coalinga chrysotile? 13:22:44 13:22:48
A. Correct. 13:22:52
Q. What color are you identifying with what you identified here? 13:22:52 13:22:55
A. Red purple. 13:22:57
Q. Red purple, okay. Exhibit 26 is particle 3 from that same grouping which is not on your screen. There it is. Is the fiber that is curved structure that kind of wraps around the clamshell of the larger structure in the center of that screen? 13:23:06 13:23:16 13:23:20 13:23:34 13:23:39 13:23:42
A. It looks to. However, can you show the alpha image of the same particle. Particle 3 alpha. 13:23:43 13:23:47 13:23:52
Q. Give me a second to rename it. 13:23:54
(Exhibit 28 Particle 3 M2001 1.550 CSDS Alpha marked for identification.) 13:24:08 13:24:08
Q. Exhibit 28 will be particle 3 alpha. 13:24:09
A. That's right. Usually the alpha direction is the clearer. You can see a fibrous 13:24:15 13:24:18

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structure in the middle. 13:24:25
Q. That's kind of -- for Exhibit 28 it is running the left edge of that center mass structure? 13:24:27 13:24:32 13:24:35
A. Mm-hmm. 13:24:36
Q. Is that right? 13:24:36
A. Correct. 13:24:37
Q. Okay. Going back to Exhibit 26, is it again are we talking about this line that runs in the outside of this larger mass structure? 13:24:37 13:24:42 13:24:49
A. Yeah, that's the same structure. However, we are looking at the horizontal one. 13:24:51 13:24:54
Q. Very true, yes. 13:24:57
A. Horizontal part. 13:24:59
Q. What color do you identify with this structure for purposes of the CSDS chart? 13:25:00 13:25:04
A. Red purple. 13:25:08
Q. Red purple. Let me kind of jump around with you just a little bit and then we will probably get to a point where we can take a break, okay? 13:25:11 13:26:06 13:26:09 13:26:11
A. Okay. 13:26:11
Q. What type of illumination bulb were you using when you took these images in June? 13:26:12 13:26:23

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A. It is LED light source. 13:26:25
Q. What color temperature was the white light in that bulb? 13:26:30 13:26:33
A. I did not measure that, but I switch in the daylight filter, the building in the microscope. That daylight filter is specifically designed for that light source to make it the daylight color temperature. 13:26:36 13:26:39 13:26:46 13:26:51 13:26:56
Q. That's built in to the microscope you were using? 13:26:58 13:27:00
A. Yes. 13:27:02
Q. Remind me. What were as the microscope you were using? 13:27:02 13:27:04
A. It's Leica DM2700 P, the model number. 13:27:06 13:27:12
Q. You said that's the same microscope that Bill Longo's lab uses. 13:27:12 13:27:15
A. Correct. 13:27:18
Q. You have no concerns about using an LED bulb even though you don't know the color temperature of the light coming out of it? 13:27:19 13:27:21 13:27:25
A. Because the daylight filter will correct that. 13:27:27 13:27:31
Q. Okay. And that's a standard feature 13:27:32

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on that microscope? 13:27:34
A. That's right. That is the top-of-line microscope. 13:27:34 13:27:37
Q. Nice microscope. You do recognize that there are different color temperatures of white light, correct? 13:27:38 13:27:43 13:27:46
A. Oh, yes. I do. 13:27:46
Q. You can have a higher color temperature which is going to be hued a little bit more yellowish; you can have a colder-color temperature which is going to be more bluish, correct? 13:27:49 13:27:51 13:27:55 13:27:59 13:28:02
A. Correct. 13:28:02
Q. And it all falls in the range of white light, correct? 13:28:02 13:28:06
A. No. The white light is daylight. 13:28:07
Q. Forgive me for that. Yes. 13:28:13
Incandescent bulbs, tungsten bulbs, LED illumination sources, they can all have different temperature of white, right? 13:28:19 13:28:25 13:28:26
A. Different color temperature. 13:28:27
Q. Microscopes have software and filters built into them to correct for this, correct? 13:28:31 13:28:35
A. As far as I know, Leica is the only 13:28:38

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model I saw; for example, the Olympus BH-2 model, 13:28:43
which many asbestos lab used in the past. Now, 13:28:53
later on, Olympus put out a more advanced model 13:28:59
which cost a lot more expensive than the BH-51, BH-4 13:29:04
series, BH-5 series, even have a BH-6 series. Then 13:29:13
those Olympus are very well built. It will have a 13:29:20
complete system, a custom design daylight filter 13:29:25
with the light source. Same as the Leica. 13:29:34
Q. If there is no daylight filter, say, 13:29:44
in an older Olympus microscope like you're talking 13:29:47
about, are there software adjustments to account for 13:29:51
white balancing images? 13:29:58
A. Not I'm aware of, because BH-2 13:30:01
microscope does not come with a digital camera and 13:30:07
the image software. But the Leica did -- does. 13:30:14
Q. So I don't have instance recall of 13:30:19
every microscope that MAS has ever used. Is the 13:30:24
Olympus BH-2 the one you were aware of them ever 13:30:28
using? 13:30:33
A. I don't recall when I did the 13:30:34
on-site, but most likely in a year that was 2006 13:30:37
they are more likely to have the Olympus BH-2. As I 13:30:45
said, Olympus BH-2 and the Nikon H4, these two 13:30:50
models are the working horse for asbestos lab. They 13:31:01

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are using either Olympus or Nikon. 13:31:05
A few lab use a very cheap 13:31:09
microscope, Meiji, M-e-i-j-i. That is a model, but 13:31:15
that microscope really is too poor builded [sic]. 13:31:23
Q. Okay. To answer my question, you 13:31:28
don't know if MAS ever used the Olympus BH-2, but 13:31:30
you think if they did it would have been back in 13:31:34
2006? 13:31:37
A. Correct. 13:31:39
Q. Okay. Since MAS began doing 13:31:39
polarized light microscopy with cosmetic talc, do 13:31:43
you know if they've used microscopes other than the 13:31:50
Leica? 13:31:52
A. No, I don't. 13:31:53
Q. You don't know? 13:31:55
A. Okay. But I know this Leica 13:31:56
microscope, I think they start using that two years 13:31:58
ago. Because if you looked at report, prior to 13:32:05
that, the image looks so yellowish-brownish and the 13:32:11
color temperature is skewed to the warm, to the 13:32:18
yellow-red. Now, suddenly the image become well 13:32:22
white balanced, then which means is the Leica 13:32:30
microscope. 13:32:37
Q. Before we take our break, I want to 13:32:37

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ask you a couple questions about that. 13:32:39
This process of central stop 13:32:42
dispersion staining is a process, right? 13:32:49
A. It is a technique for measuring refer 13:32:53
refract index. 13:32:58
Q. Right. It's a method. It's a way of 13:33:00
doing something? 13:33:02
A. Correct. 13:33:03
Q. The method can be followed up to a 13:33:03
point to where it becomes the discretion of an 13:33:08
analyst in either how the image is prepared or how 13:33:13
they're interpreting it, correct? 13:33:18
MR. HYNES: Form, vague, overbroad. 13:33:20
You can answer. 13:33:23
A. I will say the key factor using 13:33:24
correctly use the dispersion staining technique to 13:33:34
measure refract index starting with the calibration 13:33:38
of the dispersion staining color, which I discussed 13:33:45
in detail in a paper couple years ago. I have the 13:33:50
whole step-wise procedure, like SOP, plus all the 13:33:58
tools which means all the conversion tables to use. 13:34:04
Q. Correct. So if you follow those 13:34:10
steps and you get to a point where you're dealing 13:34:12
with the discretion of the analyst, right, you will 13:34:16

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get to a point where the analyst has to make an 13:34:20
interpretation of what they are seeing, correct? 13:34:22
MR. HYNES: Overbroad. 13:34:25
A. Yes. 13:34:29
Q. Just like you made an interpretation 13:34:29
of the exhibits that we just looked at about the 13:34:31
colors associated with them, correct? 13:34:33
A. Correct. 13:34:35
Q. If you follow the steps up to the 13:34:37
point where you're making a subjective 13:34:40
interpretation of the colors that you're evaluating, 13:34:44
then it is reasonable that scientists may disagree 13:34:49
about the interpretation, correct? 13:34:53
MR. HYNES: Incomplete hypothetical, 13:34:56
overbroad. 13:34:58
A. No. 13:34:59
Q. Reasonable scientists can't disagree 13:35:00
on those things? 13:35:03
A. You have to check Becke line. You 13:35:04
see, when you make that decision, you need to check 13:35:10
image with Becke line. If you did that and your 13:35:17
system is well calibrated, then you will get the 13:35:23
correct results. If you only look at the dispersion 13:35:29
staining image without checking with the Becke line, 13:35:37

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you may not. 13:35:43
Q. Okay. In this grouping of -- in your 13:35:44
authorship, in your peer-reviewed publications, is 13:35:55
there a paper you can think of that you've authored 13:35:59
that outlines the requirement to confirm your CSDS 13:36:03
image against the Becke line to ensure that you're 13:36:13
not reading a reflection or some other distortion? 13:36:18
A. Beside my paper? 13:36:24
Q. No. I am asking which papers say 13:36:25
that. 13:36:28
A. My papers say that. 13:36:29
Q. You have a lot of papers. 13:36:30
A. Yes. 13:36:32
Q. I am wondering if you can be more 13:36:32
specific. 13:36:34
A. I think my 2022, 2023 paper. There 13:36:36
are two papers about it. 13:36:43
Q. So it is your opinion that if you 13:36:45
don't cross-reference your CSDS analysis with a 13:36:48
review of the Becke line, that you're not following 13:36:53
the procedure that's been referred to as the Su 13:36:57
Method? 13:37:08
A. I think if you are trained 13:37:08
microscopist in polarized light microscopy and you 13:37:16

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understand the principle behind refract index 13:37:21
determination using Becke line or the dispersion 13:37:28
staining, you should automatically know you need to 13:37:33
check with another method if you're in doubt. It 13:37:40
should become automatically. However, if an analyst 13:37:51
is not trained in this sense, he might not, that is 13:37:58
the purpose of my paper. I thought you should. 13:38:04
However, if you don't, now here is my paper to help 13:38:11
you. 13:38:17
MR. BRALY: Do you want to take a 13:38:20
break? 13:38:21
MR. HYNES: Sure. 13:38:22
(A break was taken.) 13:47:03
BY MR. BRALY: 13:49:29
Q. I wanted to start just by asking you 13:49:29
about something that I was asking you right before 13:49:37
lunch, and that had to do with findings by other 13:49:40
laboratories, finding chrysotile in Johnson & 13:49:43
Johnson's products. I specifically wanted to ask 13:49:47
you about McCrone. 13:49:50
Do you believe that the analysts at 13:49:54
McCrone generally follow a sound methodology for 13:49:59
identifying asbestos in things like talc? 13:50:02
A. I do. 13:50:05

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Q. To the extent that McCrone reported 13:50:09
finding chrysotile in Johnson & Johnson's Baby 13:50:12
Powder, by reputation alone, you would tend to 13:50:20
believe that they were accurate? 13:50:25
MR. HYNES: Overbroad. Calls for 13:50:27
speculation. 13:50:29
A. I'm not aware -- McCrone has passed 13:50:29
away quite a number of years ago, so since then, I 13:50:34
think I retired on 2006. I have almost no 13:50:42
connection with McCrone. 13:50:52
But before my retirement, I 13:50:55
periodically go to Inter/Micro, the meeting in 13:51:02
Chicago. But after I retired, I think I only go to 13:51:05
some Johnson & Johnson conference, GSA conference 13:51:09
and SDM conference. I believe I stop going to 13:51:16
Chicago for the Inter/Micro, which is good meeting, 13:51:23
but I don't feel I have to go. 13:51:27
Q. I guess what I am asking is, if 13:51:31
McCrone in the 1970s was finding detectible levels 13:51:33
of chrysotile in Johnson's Baby Powder, you would 13:51:38
have no reason to dispute McCrone's findings without 13:51:42
actually analyzing what it is that they looked at? 13:51:46
MR. HYNES: Same objections. 13:51:49
Go ahead. 13:51:50

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A. In my view, of course I can neither 13:51:52
confirm or deny their results. However, as a matter 13:51:58
of importance, I will look the sample myself. 13:52:06
Q. I want to go through some of your 13:52:11
report criticisms. And I think I want to go to -- I 13:52:32
want to start with just this section. What I'm 13:52:41
looking at here is page 24 of the pdf of Exhibit 3. 13:52:45
It's page four of your PowerPoint presentation. 13:52:51
A. Okay. 13:52:55
Q. I will wait for you. 13:52:56
A. Yes. 13:53:02
Q. The image on the left, you use the 13:53:03
term "suppressed." And on the right you use the 13:53:08
term "unsuppressed." Do you see that? 13:53:12
A. Yes. 13:53:14
Q. Let's go through the basics. The 13:53:15
basics are, you were not present when this image was 13:53:19
captured on the microscope, correct? 13:53:22
A. Correct. 13:53:24
Q. The analyst who was there said that 13:53:25
the light intensity was all the way up, correct? 13:53:29
A. Correct. 13:53:31
Q. The image on the right was brightened 13:53:32
through software, correct? 13:53:38

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A. Photoshop. 13:53:40
Q. Through Photoshop, okay. And it is a 13:53:40
presumption of yours that because it could be 13:53:45
brightened through software, that the original image 13:53:48
lacked the full illumination intensity, correct? 13:53:55
A. That was my conclusion. 13:53:59
Q. But whether or not, in fact, the 13:54:01
fully illumination intensity available for that 13:54:04
microscope was being utilized is something that you 13:54:08
don't know? 13:54:11
A. No, I don't. That's the reason I 13:54:11
went to RJ Lee in Pittsburgh. I want to confirm my 13:54:15
opinion. And the work I did confirm this 13:54:22
comparison. 13:54:29
Q. And that's something you did after 13:54:30
you issued the report in the MDL -- 13:54:32
A. Exactly, I want confirm through my 13:54:35
work. 13:54:38
Q. I have to finish the question, 13:54:39
because it's the way all this works. 13:54:42
A. Sorry. 13:54:45
Q. You confirmed that after you authored 13:54:45
this report, correct? 13:54:48
A. Correct. 13:54:50

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Q. By the way, the report that you 13:54:51
issued in the MDL and the report you issued in Kayme 13:54:53
Clark's case, right? There is only one report from 13:54:59
May of this year? 13:55:02
A. Yeah, that's only report I issued. 13:55:03
Q. Just making sure. Wouldn't be the 13:55:06
first time I got halfway through a deposition and 13:55:08
realize I was talking about the wrong report. 13:55:10
There is another example of this. 13:55:13
This is the next page, page 25 of the pdf. It's 13:55:19
paginated five of your PowerPoint. 13:55:24
A. Correct. 13:55:28
Q. This is a sample from what's referred 13:55:28
to as the Klayman sample, K-l-a-y-m-a-n? 13:55:30
A. Yes. 13:55:35
Q. Same questions, you have no idea 13:55:35
about whether or not the images on the left what's 13:55:38
labeled as suppressed were or were not at their full 13:55:43
intensity on the microscope when those images were 13:55:48
captured, correct? 13:55:51
A. I think there's two issues in this 13:55:52
statement. I don't need to know the setting, 13:55:56
intensity setting, but for experienced analyst 13:56:04
simply by looking at the image you would know 13:56:13

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whether illumination is correct or not. Which is to 13:56:18
say, when I look the original image in MAS report, 13:56:27
like the first time the Gold Bond report Mickey sent 13:56:37
to me in 2022 review, so my first reaction when I 13:56:45
saw the image, I said, something wrong, because, you 13:56:53
see, many particle in the background they did not 13:56:59
show up. 13:57:04
If you are in fully illumination, the 13:57:07
light intensity is proper. I call it normal 13:57:11
illumination. You should be able to see all the 13:57:17
particles, the majority of particles in the field of 13:57:23
view. 13:57:27
Now, when you see an image on the 13:57:29
left, you're immediate reaction is the intensity of 13:57:31
the light used, this in is insufficient or I call it 13:57:39
suppressed. 13:57:48
Q. Presume with me for a moment that the 13:57:53
intensity was as high as that particular model 13:57:59
microscope would allow it to go, assume that for me 13:58:02
for just a moment, okay? 13:58:07
A. (No verbal response.) 13:58:08
Q. If true, what else were they to do in 13:58:09
capturing this image? 13:58:13
A. You see, this Leica microscope are 13:58:15

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like the Olympus BH-2. Olympus BH-2 has a slider on 13:58:20
the right side of the base of the microscope, as a 13:58:29
minimum and as maximum. Simply by pulling that, you 13:58:35
know you are low intensity, high intensity or 13:58:41
medium. 13:58:48
But the Leica microscope is not 13:58:48
designed like this way. It has a wheel, not a 13:58:52
slider. The wheel has no stop. It turn 360 13:58:58
degrees. It did not have a mark on the side of 13:59:07
intensity dial. So you simply by looking at the 13:59:12
wheel, you don't know which setting you are. 13:59:21
What I'm saying, you don't know which 13:59:26
intensity, whether it is a full or half or minimum, 13:59:29
you don't know. The only way you know is looking at 13:59:35
the -- through the tube, observing the image. In 13:59:40
the meantime, you use your left hand to turn the 13:59:50
wheel. Now you know whenever you think the 13:59:52
illumination is proper, you're stopped. 14:00:00
So if you look at my Pittsburgh 14:00:07
folder, I think the first one for the Valadez baby 14:00:10
powder samples I took three images. One is 14:00:17
suppressed. Another is I consider as normal 14:00:23
illumination. And the third is I adjust that until 14:00:29
I cannot increase the intensity anymore. So I 14:00:35

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labeled that image as a maximum intensity. So I 14:00:41
have three images; suppressed, normal, and maximum. 14:00:47
The way with that microscope you 14:00:54
cannot tell from the intensity adjustment, unlike 14:00:58
BH-2 which you can. You can only determine whether 14:01:04
the intensity is proper or under or over by looking 14:01:09
at image. 14:01:17
Q. So I don't think you actually 14:01:19
answered my question, but there is a lot of good 14:01:28
information here. 14:01:31
A. Okay. 14:01:32
Q. I want to start with the point you 14:01:32
brought up about the illumination folder in the 14:01:36
materials that you provided. There are -- and I 14:01:40
haven't marked them. I haven't asked you about 14:01:44
them, but I have them here, photos of suppressed 14:01:45
normal and max. I have seen those. 14:01:49
Are those photos that were 14:01:53
manipulated digitally or are those images that you 14:01:55
took from the Leica microscope? 14:01:58
A. Direct image from the microscope. 14:02:01
Q. Okay. That's an example that you did 14:02:04
with the Leica microscope? 14:02:06
A. Yes. 14:02:07

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Q. Okay. And there is a video. I 14:02:08
presume the video is of you doing that. 14:02:11
A. Yes. 14:02:14
Q. That's something that you did with 14:02:14
Bryan Bandli and Matt Sanchez after your report in 14:02:17
this case? 14:02:20
A. Yeah, with Matt. Bryan, he was in 14:02:21
Europe. He was attending IMARC meeting. Okay. But 14:02:24
he is online on Zoom. 14:02:29
Q. The IMARC meeting, that's in Lyon, 14:02:32
France? 14:02:37
A. Correct. 14:02:37
Q. He got to go to France while you're 14:02:37
hanging out in Pittsburgh? 14:02:40
A. Yes. 14:02:43
Q. My question to you was, you're aware 14:02:44
that the analyst who did this imaging, Paul Hess, 14:02:53
said that the intensity was all the way up, all 14:02:56
right? I want you to presume that it was. What 14:03:00
else would he to do? You follow what I'm saying? 14:03:04
A. Yeah. 14:03:08
Q. You know, you keep saying that this 14:03:09
was suppressed, but having not been there or 14:03:11
experienced that, it strikes me as something that 14:03:17

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you simply don't know. 14:03:21
MR. HYNES: Object to form. 14:03:24
A. As matter of fact, you see, I would 14:03:25
love to go to his lab, show him on the microscope, 14:03:28
okay, what is the fully illumination, what is 14:03:34
suppressed, what is the normal. The only way to 14:03:40
communicate with him is by using his microscope with 14:03:44
a sample on the stage. Because that is the best way 14:03:51
to explain that. If I could, I would love to go. 14:03:56
Actually, I wouldn't mind even give him some 14:04:02
training to do the work better. Okay. 14:04:08
Q. Maybe at a different time. I think 14:04:11
that ship has sailed now. 14:04:17
I wanted to ask. I am looking now at 14:04:29
page 32 of the pdf, which is page 12 of your 14:04:41
PowerPoint. 14:04:47
A. Okay. 14:04:48
Q. This is where we are talking about 14:04:50
the concept of total reflection. 14:04:51
A. Yes. 14:04:55
Q. Your testimony here is that analyzing 14:04:56
the edge of a particle for the color is not 14:05:05
appropriate unless you confirm it through the Becke 14:05:11
line? 14:05:16

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A. Correct. 14:05:16
Q. I just want to make sure. The Becke 14:05:17
line adjustment is to deal with this concept of 14:05:21
total reflection; is that right? 14:05:26
A. It's the best way to recognize the 14:05:30
total reflection caused distortion to the central 14:05:36
stop dispersion staining color. Whether the color 14:05:43
has been distorted due to the edge or boundary 14:05:48
effect can be determined by Becke line. 14:05:55
Q. I want to ask you some follow-up 14:06:00
questions on this: 14:06:02
The edge or boundary effect, it can 14:06:03
be -- it's a real thing, right? It's something that 14:06:10
happens without distortion, correct? 14:06:13
MR. HYNES: Vague, overbroad. 14:06:17
Q. Let me ask a different question. I'm 14:06:20
sorry. Forget I asked that one. 14:06:22
When we looked at images that you 14:06:23
took just a moment ago, that series of images 14:06:25
between 18, Exhibit 18 and I think 24 and 25, there 14:06:28
were examples of fibers that had different colors 14:06:34
around the edges, correct. 14:06:40
A. Correct. 14:06:42
Q. Right. So and you had confirmed by 14:06:43

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looking without the central stop at the Becke line to confirm that this was not a result of this total reflection phenomenon, correct?

MR. HYNES: Objection, misstates testimony.

A. Could you say again?

Q. Yes, I can.

A. Okay.

Q. When you identified an edge color or a boundary distinction color, you confirmed that it was not distortion by confirming through the Becke lines that this was not part of this total reflection distortion, correct?

MR. HYNES: Form.

A. Correct.

Q. So it is completely valid that you might have a fiber that has different colors in the middle versus the edge, because of a legitimate edge effect, correct?

MR. HYNES: Vague, overbroad.

A. I don't know whether the word "legitimate" is appropriate because, for example, in my graph, I show you if the boundary or the interface between the liquid and the fiber, if that

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angle exceed or equal the critical angle which the starting angle occur the total reflection if it happen that angle meet that criteria, I think another slide I calculate, for example, 83, 86 degrees, something like that. Once that angle reach the critical angle, then this wavelength will be totally reflected. It's not going to enter the objective. Therefore, the corresponding central stop dispersion staining color is distorted.

Q. I think all I'm trying to figure out is can you have an edge effect, a boundary effect like what we see on page 32 of Exhibit 3, that is the result of distortion and can you also have a boundary edge effect that is not the result of distortion?

A. Any so-called boundary effect will always cause a distortion if the angle equal or exceed the critical angle --

Q. I'm sorry for interrupting you. But if it doesn't exceed that critical angle --

A. It will not cause that.

Q. But you will still have -- can you still have a boundary edge effect that is not the product of distortion?

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A. Then there is no effect. You see, if it does not reach the critical angle, the corresponding central stop dispersion staining color will not be altered so there is no effect on the color.

Q. So I'm sorry. I'm sorry if I'm the one who is being dumb here.

MR. PLACITELLA: Don't apologize. It happens a lot.

THE WITNESS: I wish I can present some graphics I create after this report --

BY MR. BRALY:

Q. I'm sorry for interrupting. Let me go back to Exhibit 19. This was one of the images that you took, right?

A. Correct.

Q. And there are different colors in this fiber?

A. Correct.

Q. There is goldish in the middle. There is purple on the edges. You can have different colors around the edge that is not the result of some kind of improper distortion?

A. Correct.

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Q. Okay. But you believe -- going back to Exhibit 3, page 32 -- that this image in the top left, it is your opinion that this is the result of some kind of reflective distortion?

A. Yes.

Q. And to correct for this, Mr. Hess or whoever the analyst is should remove the central stop and check the Becke line?

A. Correct.

Q. And what color Becke line should they see?

A. The Becke line, when you examine the Becke line, first you look at the relief of the particle. If the liquid refract index is very close to the particle, the relief is very, very low or unnoticeable. However, if the liquid is significantly higher or lower than the object, than the structure, the relief will be very clear.

So if, for example, this fiber, which I think may be Paul Hess did, if he examined the same particle in Becke line mode by switching off the central stop, he should be able to see the relief of the edge is very obvious. However, the center, it's merged with the liquid. There is no

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little or no relief. 14:13:29
Q. When I've seen Becke line images, I 14:13:31
have seen them as halos of reddish or greenish. Do 14:13:34
you know what I am talking about here? 14:13:40
A. I know. 14:13:41
Q. I would hope so. Because I don't and 14:13:42
you're Dr. Su. 14:13:49
Is there a color that is associated 14:13:51
like a halo when you view this kind of thing in a 14:13:55
Becke line mode and, if so, what should it be? 14:13:58
MR. HYNES: Vague. 14:14:03
A. I think the best way to answer this 14:14:06
is if I could present a color bar for Becke line, 14:14:10
which nobody did until a couple months ago at the 14:14:19
DRIMMC institute. Dr. Bow Lee, he create the first 14:14:26
set of the Becke line color chart. McCrone did the 14:14:34
essentially stop dispersion standing chart. Eric 14:14:43
Chatfield did the ISO chart. None of them created a 14:14:48
Becke line chart. 14:14:55
The first one I believe was done 14:14:59
couple months ago by Dr. Bow Lee. He asked me to 14:15:02
review that. I think that's a great job. Will help 14:15:08
people to use the Becke line. 14:15:11
Q. Sure. 14:15:13

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A. You see, if you have that chart, you 14:15:14
look at the color in the liquid and you look at the 14:15:16
color in the particle, you go to that chart, then 14:15:22
you get the matching wavelengths, like the ISO or 14:15:27
McCrone chart for central stop dispersion staining 14:15:31
color. 14:15:36
Q. So I think we are talking about two 14:15:41
different things here for a second. When you're 14:15:43
talking about using Becke lines in something like 14:15:46
this, it is simply to observe the relief between the 14:15:49
edge and the underlying immersion oil; is that 14:15:52
right? 14:15:52
A. Right. 14:15:59
Q. You're saying there is a second layer 14:15:59
of analysis that is essentially brand-new and not 14:16:01
yet finalized to evaluate the halo color associated 14:16:04
with the Becke line; is that right? 14:16:07
MR. HYNES: Objection to form. 14:16:09
A. No. Let me clarify. What I said, 14:16:10
there are -- there is a method which is the laws 14:16:16
developed. However, it is chart with X, Y, X's and 14:16:23
also the line says in this area the particle is 14:16:29
higher by .5, .03, something like that. However, it 14:16:34
does not have color. It only describe term, purple, 14:16:44

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purplish, yellowish, orange-ish, something like 14:16:51
that. However, what Dr. Bow Lee did, he convert 14:16:55
that chart into the color bar. 14:17:02
Q. Like a visualization? 14:17:05
A. That's right. Before Dr. Bow Lee, 14:17:06
you will have to use Dr. Bloss chart. But it's not 14:17:10
the color chart what I am saying. 14:17:14
Q. It's a descriptive chart? 14:17:17
A. That's right. Actually that chart, 14:17:19
every time when I got to a NVLAP lab to do the 14:17:33
online assessment, I always give that chart to them. 14:17:38
Okay. And told them if you use Becke line to 14:17:45
determine the refract index, this the chart to use. 14:17:49
Q. Next slide I want to talk to you 14:18:03
about is this -- your slide 13 of the PowerPoint. 14:18:05
It's page 33 of Exhibit 3. 14:18:10
You had talked about this before. 14:18:13
Dr. Longo had taken a PLM image and reported a 14:18:16
variety of different retractive indices within a 14:18:21
particular bundle. Your conclusion here is that 14:18:25
this is not possible. 14:18:29
A. No. 14:18:31
Q. My question is, why not? If you have 14:18:32
a bundle of individual fibers, why would it not be 14:18:38

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possible for different chrysotiles in that bundle to 14:18:44
have different refractive indexes? 14:18:48
A. Let me explain. I know the history 14:18:51
of this 1866 SRM developed by NIST. If you look at 14:18:55
the certificate, there are two names there. 14:19:03
Jennifer Verkouteren, she is the supervisor of that 14:19:08
lab. And a second name is John Phelps. John Phelps 14:19:15
was the one who measured the refract index of this 14:19:23
1866 chrysotile from Canada. The first thing they 14:19:31
do in order to establish an SRM, which stands for 14:19:39
Standard Reference Material, which is job done by 14:19:49
NIST. Their name is National Institute of Standards 14:19:56
and Technology. They have issued various standard 14:20:01
reference material. 14:20:07
The chrysotile is one of the 14:20:09
asbestos. They have two sets, asbestos standards. 14:20:13
1866, which is common asbestos, including 14:20:17
chrysotile, amosite and crocidolite, plus 14:20:25
fiberglass. 14:20:31
The second set is uncommon asbestos, 14:20:32
which are the tremolite, actinolite, anthophyllite. 14:20:38
Now, when they are developing this standard 14:20:46
reference material, John Phelps have close contact 14:20:52
with me. The reason is, they were using the most 14:21:02

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accurate procedure to measure the refract index is 14:21:09
called a spindle stage, which is developed by Dr. 14:21:14
Bloss. Doc Bloss have just a book called The 14:21:21
Principle of Spindle Stage. 14:21:26
Q. I think I have that book. 14:21:28
A. You have that? 14:21:30
Q. I think I do. 14:21:31
A. That's right. That's the most neat 14:21:32
technique to measure refract index in a sense, you 14:21:38
mount the target mineral onto a tip of glass fiber, 14:21:45
you use fingernail polish. You glue the object 14:21:56
mineral onto that fiber. Now you mount that onto a, 14:22:01
they call Goniometer, which is used in X-ray 14:22:08
detraction to sample mounting. The reason is, that 14:22:18
device can rotate in XY access, which means you can 14:22:24
orient fiber to any direction you want, because when 14:22:33
you use the Becke line method, as I said in the 14:22:41
past, you have to change the oil. Then it would be 14:22:46
hard to keep on the same particle. You have to find 14:22:53
another particle to prepare in another oil to 14:23:00
measure that. But a spindle stage eliminate that 14:23:03
need. You look at a single fiber, the same sample. 14:23:08
You change the refract index of the oil by heating 14:23:15
or cooling that until you saw a match. 14:23:19

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Because, for example, the chrysotile 14:23:27
which had behaved like in the actual crystal so it 14:23:32
has two principal refract index, gamma and alpha. 14:23:37
All the rest, the other five, they are by actual. 14:23:45
There is three principal refract index. Chrysotile 14:23:50
has only two. 14:23:55
However, you need to orient the 14:23:57
direction, for example, gamma to be parallel to the 14:24:00
polarizer. Then you're measuring the true gamma. 14:24:06
You have to orient the fiber perpendicular to the 14:24:11
polarized light -- polarizer to measure the alpha. 14:24:15
The spindle stage make this job easier. However, it 14:24:22
is still very tedious, because in order to establish 14:24:30
this as standard reference material, you can only -- 14:24:36
you do not only measure wine fiber to represent the 14:24:41
whole batch of the material. You have to measure 14:24:45
many of them, make sure it is stable, refract index, 14:24:49
then it will be qualified to be an SRM. 14:24:57
So what John Phelps did when he was 14:25:02
at NIST, it's very tedious job, because actually he 14:25:06
went to Virginia Tech. At that time I'm still 14:25:12
finishing my PhD to learn the spindle stage 14:25:17
technique. And after he returned to the NIST, what 14:25:26
he did the measurement we were in close contact. 14:25:31

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Whenever he run into any problem, he will call me. 14:25:38
Therefore, what I'm saying, this 1866 14:25:43
chrysotile has a constant, very stable refract 14:25:50
index. Gamma is 1.56. Gamma is 1.556. Alpha is 14:25:58
1.549. This has been confirmed by many measurements 14:26:07
of John Phelps. So in this bundle it's all 1866. 14:26:13
It's not a bundle put together with Canadian 14:26:24
chrysotile of Vermont or Italy. It is entirely from 14:26:32
Canada. Therefore, this fiber has only one refract 14:26:42
index. Otherwise, it would be not qualified to be a 14:26:51
standard reference material. 14:26:54
Q. I understand the logic. 14:26:56
A. Yeah. 14:26:58
Q. Okay? 14:26:58
A. The color, the reason it has a range 14:26:59
of color like this micrograph indicates is, they are 14:27:04
distorted dispersion staining color. 14:27:13
Q. Okay. As an analyst when you're 14:27:17
looking at something like this that looks like a 14:27:26
fire work -- 14:27:29
A. Yes. 14:27:31
Q. -- how do you know which color to 14:27:32
sample to reference against the CSDS chart? 14:27:36
A. Becke line. 14:27:41

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Q. How does the Becke line show you 14:27:46
that? That's what I'm still -- this is where I 14:27:49
don't know because I'm not a microscopy. 14:27:52
A. This image is the chrysotile 1866 14:27:56
chrysotile in 1.55 oil. Now we are looking at 14:28:01
elongated direction, which is the gamma direction, 14:28:13
whose refract index is slowly above the 1.55 oil. 14:28:21
However if it's not at 25 degrees C, most likely 14:28:30
it's under that. The oils refract index probably is 14:28:39
higher, slightly higher than 1.55O. Maybe is.551, 14:28:46
something like that. Those correction has been 14:28:53
built in the conversion table I created. 14:28:58
Under the Becke line, it were in the 14:29:04
area of Dr. Bloss's chart in the area slightly above 14:29:09
a perfect match, which means the gamma directions 14:29:17
Becke line have a strong, slightly stronger orange, 14:29:26
red orange color than the light blue color in the 14:29:35
liquid. 14:29:40
You will find the Becke line image. 14:29:42
You look for that color pattern. Then you know here 14:29:47
is the true imagine between the liquid and the 14:29:55
fiber. 14:30:02
Q. So I'm going to do this: You did 14:30:03
submit this week to me some photos of Becke line 14:30:09

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imaging. 14:30:14
A. Yeah. The Cargille glass. 14:30:15
Q. Yes. You say glass -- 14:30:21
A. Glass. 14:30:22
Q. You're looking at glass? 14:30:23
A. Yeah. 14:30:24
Q. Okay. So I marked one of these as 14:30:26
Exhibit 29. 14:30:30
Cargille is a company. They supplied 14:30:47
standards that you can use? 14:30:50
A. Yeah. 14:30:53
Q. So that's clear on the record. So 14:30:53
what this photo that you submitted to me is, is 14:30:56
glass in 1.550 refractive index oil under the -- 14:31:02
with the Becke line setting -- I keep calling it 14:31:10
oculus but it's not. What's it called? 14:31:15
A. The objective. 14:31:20
Q. The objective, yeah. So how does the 14:31:21
line, the line around the perimeter of this, one of 14:31:30
them is kind of brownish. One of them is kind of 14:31:37
reddish brown. The other one is kind of greenish. 14:31:41
Other one is kind of bluish. How do these lines 14:31:44
tell you how close this object is to the surrounding 14:31:48
refractive index oil? 14:31:52

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A. The Bloss chart, you use the Bloss 14:31:54
chart to determine -- 14:31:59
Q. Okay. 14:32:01
A. -- whether it is a match, how close 14:32:03
the match or how far no match. 14:32:05
Q. All right. 14:32:09
A. If you refer to that chart, you will 14:32:10
immediately know the different, the Becke line. 14:32:15
Q. Probably a Becke line, B-e-c-k-e? 14:32:24
A. Yeah, B-e-c-k-e. 14:32:29
Q. So you would have to, what, take a -- 14:32:48
the analyst would have to determine what color this 14:32:53
is and then match it to the descriptive color in the 14:32:57
Bloss chart? 14:33:02
A. Correct. 14:33:02
Q. To figure this out. So there is a 14:33:03
subjectivity to the analyst saying that this is 14:33:05
brown versus dark reddish or orange-ish and then 14:33:10
comparing that to a descriptive phrase on the Bloss 14:33:17
chart? 14:33:22
MR. HYNES: Object to form. 14:33:22
A. No. Let me explain. Actually, the 14:33:23
analyst should look the area shows the closest 14:33:27
match, then were the directive, the true reflect 14:33:35

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index of the object. 14:33:45
Q. When you say the closest match, in 14:33:46
this particular image, there are two particles in 14:33:48
this particular image. And if we look at the 14:33:51
particle on the right in the top left section of the 14:33:54
particle on the right, it appears to be a blending 14:33:59
match there between the oil and the particle. Am I 14:34:04
doing this right? 14:34:06
A. Yes. 14:34:07
Q. Okay. So then, do you take the line 14:34:08
most closely associated with that matching; is that 14:34:11
right? 14:34:18
A. Yes. 14:34:18
Q. You would use the color kind of 14:34:18
brownish here and then compare that to the Bloss 14:34:21
chart and it will give you a refractive index value? 14:34:24
A. It will tell you how close the 14:34:28
particle to the oil. The oil is like a measure. It 14:34:33
has the known value of 1.55. This glass from 14:34:39
Cargille, actually was Corning glass, they use that 14:34:46
as the standards. This glass is M7 set because 14:34:52
Cargille has issue three sets of the glass. This is 14:34:57
the M7 set from the lot B, which has a refract index 14:35:01
of 1.55077 at 589 nanometer wavelengths, which is 14:35:12

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the standard wavelengths to describe the refract 14:35:23
index. 14:35:27
So this area, you just point out, you 14:35:29
see here the particle looks like it merged into. 14:35:37
You cannot see the relief. Then it indicates it's a 14:35:45
very, very close match between the glass and the 14:35:52
liquid. Therefore, you should use this area to 14:35:59
measure as in the value of the glass refract index. 14:36:07
Q. So when you figure that out, the area 14:36:14
that you should be using, is that when you're 14:36:17
supposed to switch back to the central stop and then 14:36:21
evaluate that same relative location? 14:36:25
A. Yes. You see, I have a corresponding 14:36:27
image of this two particle in central stop mode. 14:36:31
Can we switched to that micrograph? 14:36:36
Q. You do. Look at that. I will mark 14:36:44
that as Exhibit 30. 14:36:52
(Exhibit 30 Image 1.55 Glass CSDS 1.550 14:36:54
marked for identification.) 14:37:04
Q. Again, for the right particle, the 14:37:04
two particles in the center of the screen, you're 14:37:08
saying that the correct place to evaluate the color 14:37:11
is in the top -- kind of the I call it the north, 14:37:15
northwest side of the right hand particle? 14:37:19

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A. Correct. Which you have confirmed 14:37:22
with the Becke line image. 14:37:25
Q. All right. 14:37:27
MR. HYNES: I want to note for the 14:37:29
record if you could go back to Exhibit 30, please. 14:37:30
This looks a little bit different from the image 14:37:33
that was produced in advance of today's deposition. 14:37:35
May be the monitor. I'm not certain, but it 14:37:39
looks -- 14:37:43
MR. BRALY: Kevin -- 14:37:44
MR. HYNES: I can look on your 14:37:48
screen. I think it has to be the monitor. 14:37:49
MR. BRALY: Okay. 14:38:33
BY MR. BRALY: 14:38:34
Q. All right. So you have to use Becke 14:38:34
lines on something like this? 14:38:35
A. That's right. 14:38:37
Q. All right. Can I ask you about this 14:38:38
middle paragraph? On the right-hand column. The 14:38:42
last sentence that you provide here [Reading] If 14:38:46
such a theory is proved, it would shake the very 14:38:50
foundation of physics. 14:38:53
A. Yes. The reason I said that is, the 14:38:56
refract index is intrinsic physical property of 14:39:04

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material. It was -- it is determined by the 14:39:10
elemental composition and the crystal structure. So 14:39:14
within this fiber bundle in the micron scale neither 14:39:20
the elemental composition or the crystal structure 14:39:28
change. Therefore, the resulting refract index 14:39:33
should not be changed, because it also verified by 14:39:38
NIST, by measuring a series chrysotile for their 14:39:46
standard reference material sample. 14:39:55
Q. I need to... 14:39:59
MR. HYNES: Do you want to take a 14:40:22
break? 14:40:24
MR. BRALY: Sure. 14:40:24
(A break was taken.) 14:47:31
BY MR. BRALY: 14:47:34
Q. I understand what you're saying about 14:47:43
the variability what we were talking about the 14:47:45
variability of RIs within a bundle. I'm curious if 14:47:47
you have ever -- you personally have ever tried to 14:47:53
distinguish refractive indices within a bundle if 14:47:56
you've ever tried to do that or if you are just -- 14:48:01
this is just something that you wouldn't do? 14:48:04
A. You have to, because every image, if 14:48:08
you look in the -- my Pittsburgh work, every 14:48:14
structure shows a range of dispersion staining 14:48:20

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color. As I said, if I'm going to publish a paper 14:48:25
about distorted dispersion staining color, I would 14:48:31
say the distorted dispersion color is everywhere. 14:48:37
It shows in every structure I examined. 14:48:42
So for every structure I examined, I 14:48:48
automatically switch between the central stop and 14:48:51
Becke line. Occasionally I even use the annular 14:48:55
stop, because that is three setting of the McCrone 14:49:02
dispersion staining objective. It make it very 14:49:06
convenient to switch between them without changing 14:49:12
the objective. Okay. 14:49:15
Q. So I want to ask you about this, this 14:49:23
section about misinterpreting your table. Let me 14:49:30
get back on track. 14:49:54
You have a section of your report 14:49:56
that claims that Dr. Longo is misinterpreting your 14:49:58
table. Part of this I think is part and parcel of 14:50:02
the decision Dr. Longo made to switch from using 14:50:07
1.550 -- 14:50:10
A. To 560. 14:50:11
MR. HYNES: Let him finish the 14:50:14
question. 14:50:16
Q. And the justification that Dr. Longo 14:50:17
gave for switching from 1.550 to 1560 was that 14:50:19

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statement I read earlier from your peer-reviewed 14:50:26
publication from 2020? 14:50:28
A. '22. 14:50:31
Q. Thank you. I appreciate it. That 14:50:34
statement once again was found in Exhibit 13 where 14:50:55
it says [Reading] There are chrysotile minerals 14:50:59
whose refractive indexes are significantly higher 14:51:01
than those of a standard chrysotile from the NIST 14:51:05
SRM 1866 set. In that case, 1.555 or 1.560 instead 14:51:08
of 1.550 should be used to determine gamma. 14:51:16
Do you see that? 14:51:20
A. Yes, I do. That's my writing. 14:51:21
Q. Right. That's what you published? 14:51:24
A. Mm-hmm. 14:51:26
Q. Right. So the relationship between 14:51:27
NIST SRM 1866 and 1.550 RI fluid is .006. That's 14:51:32
the difference? 14:51:44
A. That's right, 005 to 006. 14:51:44
Q. Right. 1866 SRM in your -- what 14:51:50
you've offered here is that refractive index of NIST 14:51:56
1866 is 1.556, right? 14:52:00
A. Right. 14:52:04
Q. Okay. So what you're saying is that 14:52:05
there are chrysotiles that will have higher 14:52:08

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refractive indexes than that; is that right? 14:52:12
A. Yes. 14:52:15
Q. Okay. And using that same gap of 14:52:15
.006, it seems like in this writing you're 14:52:27
anticipating the potential existence of chrysotile 14:52:30
with refractive index values as high as 1.566. 14:52:33
A. No. That is not true. Let me give 14:52:43
you the background I put that in my paper. That is 14:52:45
because M12001, in year 2001 NAVLAP the first time 14:52:53
use the Calidria chrysotile as a test sample. 14:53:04
Because it is about, as I said -- as you said, it's 14:53:11
about five unit in the third decimal place higher 14:53:15
than 1.866. So I believe quite a few lab failed the 14:53:21
test because they have never seen chrysotile like in 14:53:32
that kind of range of refract index. 14:53:39
Q. You're saying "that kind of range." 14:53:42
What you're indicating is that in 2001 Calidria was 14:53:44
being identified with an RI around 1.561? 14:53:50
A. 60. 14:53:54
Q. 60. You said it was five units in 14:53:56
the third decimal place higher than -- 14:54:02
A. The 1866. 14:54:02
Q. The 1866 is 1.56. 14:54:04
A. As you said it's between my table 14:54:08

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here is for alpha is 006 higher. For gamma is 004. 14:54:11
Yeah. That is the range. 14:54:21
Q. That would be 1.560 for Calidria. 14:54:23
That was reflected in 2001? 14:54:27
A. Correct. 14:54:31
Q. 21 years later, you published a paper 14:54:31
saying that you should use a higher RI oil for some 14:54:35
chrysotiles? 14:54:40
A. Correct. Or so in that paper I said 14:54:41
for routine sample for the commercial lab, it's 14:54:48
okay, just keep using 1.55. However, when you are 14:54:53
treating the tested sample, because if you fail that 14:54:59
test twice in a row, your accreditation status were 14:55:04
being terminated. Therefore, when I go to the 14:55:14
asbestos lab, I always tell them when you are doing 14:55:19
the test sample, you better be more careful and to 14:55:24
use a 1.56 if it's chrysotile. Then your chance to 14:55:31
fail the test will be much less. 14:55:41
Q. Have you ever measured the refractive 14:55:43
index of chrysotile found naturally in a cosmetic 14:55:47
talc product? 14:55:54
A. No, because I never encounter that. 14:55:55
Q. Other than Dr. Longo -- and I 14:56:01
understand what you're saying that it's not 14:56:03

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chrysotile at all, but other than Dr. Longo, have 14:56:05
you ever reviewed anybody determining the refractive 14:56:08
index of chrysotile found naturally in a cosmetic 14:56:13
talc product? 14:56:16
A. No, I never seen any literature or 14:56:17
report. 14:56:20
Q. So I'm taking it that you're not the 14:56:28
expert who would dispute or establish that 14:56:33
chrysotile was or was not ever present in any 14:56:35
cosmetic talc products anywhere, right? That's not 14:56:39
what you do? 14:56:44
A. No. 14:56:44
Q. Right. But to the extent that 14:56:45
chrysotile has been identified in some cosmetic talc 14:56:52
products, you're unaware of what the refractive 14:56:58
index would be for something like that, an inclusion 14:57:02
like that? 14:57:09
MR. HYNES: Form, vague, incomplete 14:57:09
hypothetical. 14:57:11
A. Because I never seen the report or so 14:57:14
I never seen the data, if they find chrysotile in a 14:57:17
talc powder, what is the refract index they report? 14:57:23
I have no idea. Okay. 14:57:29
Q. Have you ever evaluated the 14:57:34

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refractive index of chrysotile from any deposit or 14:57:36
location from China? 14:57:43
A. No. 14:57:44
Q. You have evaluated chrysotile in 14:58:20
1.550 oil and 1.560 oil? 14:58:23
A. Correct. 14:58:29
Q. You did that as part of your 14:58:29
Pittsburgh project? 14:58:33
A. Yes. 14:58:35
Q. I understand you disagree with Dr. 14:58:36
Longo's interpretation maybe even the procedures 14:58:37
that he followed, but the decision to utilize a 14:58:40
different refractive index oil is not an error by 14:58:43
itself, is it? 14:58:47
A. No. 14:58:49
Q. Okay. It's simply changes the 14:58:50
calibration of what you're looking at? 14:58:55
A. It changed the color. 14:58:57
Q. Right. Then you would have to use a 14:58:59
different chart to reflect for that different color? 14:59:01
A. Exactly. 14:59:03
Q. All right. I don't understand the 14:59:04
kindergarten slide. I understand the words on it -- 14:59:30
by the way, I'm looking at page 39 of Exhibit 3. 14:59:33

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It's paginated as page 19 of the PowerPoint. 14:59:37
A. Should I explain? 14:59:42
Q. I would love it if you would. 14:59:43
A. Okay. The reason I used this 14:59:45
knowledge is, if you go to previous slide, Dr. Longo 14:59:50
said gamma value which is the parallel direction, 14:59:56
the range of the gamma is 1.540 to 1.580 which never 15:00:03
say that. The reason he interpret is because my 15:00:12
table is going from 300 to a nanometer matching 15:00:20
wavelength to 1,000 at the full range of the 15:00:30
dispersion staining color. Now, if you look at the 15:00:34
ISO chart, Dr. Eric put a dash line to say if it is 15:00:41
chrysotile, the gamma value is usually within this 15:00:52
narrow range. 15:00:57
Q. The ISO chart is the chart on the 15:00:58
right-hand side here, right? 15:01:00
A. What I'm saying here, that range cite 15:01:02
by Dr. Longo, 1.50 [ph] to 1.580 is the range the 15:01:06
color bar which is much wider that the possible 15:01:17
range of chrysotile. So you cannot interpret it, 15:01:22
the chrysotiles central stop dispersion staining 15:01:29
color could range from 300 to 1,000. Only in that 15:01:35
case then his statement, his interpretation is 15:01:41
correct. 15:01:48

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However, when I put my table, 15:01:49
conversion table, I have to cover the all -- not 15:01:54
only the possibility should be much wider than that. 15:02:00
Slide in kindergarten if you measure the children's 15:02:06
height, you use a -- they call the stadiometer. The 15:02:10
stadiometer must accommodate a much taller height, 15:02:18
which doesn't mean the children could be 6 feet tall 15:02:24
but the tool you use that would cover that beyond 15:02:28
that, as such. 15:02:36
The ISO table, ISO color chart and my 15:02:39
conversion table is cover all the matching 15:02:45
wavelengths, not necessarily the matching 15:02:49
wavelengths for the chrysotile, is only portion of 15:02:53
that. 15:02:58
Q. So I am trying to figure out if we 15:03:01
are really arguing about something worth arguing 15:03:06
about here. What Dr. Longo reported was comparison 15:03:09
of chrysotile, what he labeled this column as is the 15:03:14
refractive index range in parallel. What you're 15:03:19
saying is that your range does include those values 15:03:26
even if overinclusive? 15:03:30
MR. HYNES: Misstates testimony. 15:03:33
A. What I meant, my table, the lowest 15:03:34
refract index is 1.540. The highest is 1.580. It's 15:03:40

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not -- I'm not saying, if you look my paper, never, 15:03:52
ever in my paper I said the chrysotile gamma is 15:03:58
within that -- is the highest is 1.58. The lowest 15:04:03
1.54. It's not. The chrysotile is only a portion 15:04:10
of that range. 15:04:16
Q. Here is my question. I shouldn't 15:04:18
start it this way. These are all my questions. 15:04:22
This is my next question. 15:04:24
MR. PLACITELLA: Your killing me 15:04:28
here. 15:04:30
MR. BRALY: Thank you, Chris. 15:04:30
BY MR. BRALY: 15:04:32
Q. Earlier you told me that the highest 15:04:32
refractive index value that you had ever seen for 15:04:35
chrysotile was somewhere in the ballpark of 1.56 in 15:04:39
the low end 1.56? 15:04:43
A. The highest I saw is 1.560 to 1.561. 15:04:49
Q. Okay. You did publish, I mean, this 15:04:55
as a range that included a value up to 1.58. My 15:05:01
question is, why did you publish that instead of 15:05:08
something like 1.565 or something that would still 15:05:10
encompass the upper end of what you think is 15:05:14
possible? 15:05:17
MR. HYNES: Asked and answered. 15:05:17

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A. That paper 2003, in American 15:05:20
Mineralogist is not a paper discuss the actual range 15:05:29
of the chrysotile refract index. That table can be 15:05:36
used for measuring other type material. You see? 15:05:41
It can be used not only for chrysotile, for asbestos 15:05:51
mineral. It can be used, the material with similar 15:05:56
dispersion coefficient. Therefore, that table has a 15:06:04
general purpose of use. So it is not a paper saying 15:06:13
just for the asbestos analysis. Okay. 15:06:23
Q. What Dr. Longo also records here is 15:06:37
that Walter McCrone published a range for chrysotile 15:06:44
in parallel or gamma of 1.570 to 1.548. Have you 15:06:48
analyzed that underlying data and do you have any 15:06:56
particular criticisms of that entry? 15:07:00
A. No, because I know this is from a 15:07:03
paper of Doc McCrone. He analyzed a series 15:07:07
chrysotile from different locations in the world. 15:07:16
One of the sample showed the gamma as 1.570. He 15:07:25
reported that in his paper, but it's only at that 15:07:34
specific location. It's not a general gamma value 15:07:42
for the rest of the chrysotile. 15:07:47
Q. What was the general location from 15:07:53
which that finding came? 15:07:55
A. You mean this high value? 15:07:59

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Q. Mm-hmm. 15:08:01
A. I don't remember. And he has a table 15:08:03
in that indicate which sample is from where. Okay. 15:08:04
But I don't remember exact location of that sample. 15:08:10
You see, when NIST, they try to issue a standard 15:08:23
reference material in concert with the AHERA law, 15:08:29
that's the time they fail the needs, we need to 15:08:39
issue a standard reference material for asbestos. 15:08:45
They screen many chrysotile from different 15:08:51
locations. Finally, they decide the Canadian 15:08:59
chrysotile is most representative. That's why they 15:09:04
use that as an SRN. 15:09:10
Q. One of the issues that Dr. Longo has 15:09:42
testified about and you've taken criticism with has 15:09:48
to do with the identification of Calidria at the 15:09:51
refractive index that he found versus what you found 15:09:57
in your Pittsburgh project last month. 15:10:02
A. Correct. 15:10:07
Q. Fair? Okay. And your -- the 15:10:07
position that you've taken here is that what he's 15:10:15
identifying as asbestos is talc; is that right? 15:10:20
A. That is my opinion. 15:10:25
Q. And that's here for every one of the 15:10:28
reports that you've looked at that is referenced in 15:10:31

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your report? 15:10:34
A. Correct. 15:10:35
Q. That every time he identifies 15:10:36
chrysotile that's what he is identifying is talc? 15:10:38
A. Yeah, that is my conclusion. 15:10:43
Q. So, I want to ask you about how you 15:10:50
deal with a particular aspect of this. I am going 15:10:54
to mark as Exhibit 31, a report dated October 9, 15:10:59
2023. 15:11:04
(Exhibit 31 William Longo's Report dated 15:11:04
October 9, 2023 marked for identification.) 15:11:05
Q. This report is 196 pages long. So 15:11:05
what I am doing, is this report in total will be 15:11:08
Exhibit 31, but the section I am going to ask you 15:11:12
about is Section 5 of that report. That will be 15:11:15
Exhibit 32. 15:11:18
(Exhibit 32 Section 5 of Report dated 15:11:19
October 9, 2023 marked for identification.) 15:11:23
Q. What Exhibit 32 is, is a mixture of 15:11:23
Calidria asbestos mounted in a sample of bentonite 15:11:31
clay, okay? That is what Dr. Longo prepared. 15:11:38
So before I start asking about this, 15:11:43
I want to ask you a couple of questions. Have you 15:11:46
ever known California chrysotile to include talc as 15:11:49

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a co-contaminant? 15:11:54
A. Not I'm aware of, because I never 15:11:58
investigated that. Okay. 15:12:01
Q. I asked Mickey Gunter the same 15:12:03
question about a year and a half ago. He also said 15:12:07
no. That's neither here nor there. 15:12:09
Are you aware of any co-contaminants 15:12:13
in California chrysotile deposits? 15:12:19
A. I don't read any literature about 15:12:24
that, so I don't remember what kind of contaminate 15:12:28
it has. If it's in the literature, maybe I have not 15:12:39
read that literature. 15:12:44
Q. The SG-210 that you evaluated with 15:12:48
Matt Sanchez and Bryan Bandli was included in a 15:12:52
mixture of talc powder, correct? 15:12:58
A. I think they are pure chrysotile. 15:13:02
Q. Okay. Did you also have a sample -- 15:13:06
samples that were just straight chrysotile? You may 15:13:10
have. Did you? 15:13:15
A. You mean Pittsburgh work? 15:13:24
Q. Yeah. 15:13:29
MR. HYNES: Take a look at them 15:13:31
titled Micrometer with SG-210 1.550 and 1.560. 15:13:38
MR. BRALY: Yeah, I see it. Okay. 15:13:46

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Q. I take it you have never reviewed 15:14:01
this report before. This report. 15:14:03
A. Might have. It looks to me the title 15:14:16
I seem to remember. I look at that, but not 15:14:20
thoroughly. 15:14:28
Q. Okay. In the section that I'm 15:14:28
looking at here, which I think is section 5, yeah, 15:14:35
section 5, in a sample that has no talc in it but 15:14:42
does have Calidria -- 15:14:49
A. Which sample this? 15:14:54
Q. This is the sample of Calidria 15:14:56
mounted in bentonite clay. 15:15:00
MR. HYNES: What is the M number? 15:15:03
MR. BRALY: There isn't one. 15:15:04
A. That is spiked. The bentonite is 15:15:05
spiked with Calidria chrysotile. Of course you want 15:15:09
to see that. 15:15:13
Q. Right. What I'm saying is that this 15:15:14
is, without a doubt, chrysotile? 15:15:17
MR. HYNES: Objection; assumes facts. 15:15:20
Q. There is nothing else in there. 15:15:22
A. If it's a spiked with chrysotile, 15:15:25
under the presence of chrysotile should be a fact 15:15:32
because the sample is like spiked or contaminated 15:15:38

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with chrysotile. 15:15:42
Q. Right. So what we are looking at 15:15:44
here on page six of Exhibit 32, that's chrysotile? 15:15:47
A. Yes. 15:15:55
Q. Okay. What color would you assign to 15:15:56
what's seen here on page six of Exhibit 32? 15:16:08
A. Without looking at the Becke line, I 15:16:11
cannot simply look at a central stop dispersion 15:16:17
staining color image to make the determination. 15:16:25
MR. HYNES: I will note that the 15:16:28
reproduction of this M71547-001CSM-002 chrysotile 15:16:29
looks like a faded-out copy version of an image 15:16:38
taken at Longo owes laboratory rather than digital 15:16:47
reproduction of same. 15:16:51
MR. BRALY: Thank you for your 15:16:56
opinion, Kevin. 15:16:58
THE WITNESS: One thing I could tell 15:17:03
from that image -- 15:17:05
BY MR. BRALY: 15:17:06
Q. This one? 15:17:06
A. The first one you show me, the 15:17:07
yellow. 15:17:10
Q. Yeah. This one? 15:17:10
A. Yes. I'm very sure, you see the 15:17:14

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refract index down here it says RI 1.567 to 1.570. 15:17:20
That number doesn't match the color at all. 15:17:33
Q. How do you know that if you haven't 15:17:37
looked at the Becke line? 15:17:39
A. No. What I'm saying, the refract 15:17:41
index, he showed here, if you go back to my table -- 15:17:43
can you pull out my 1.550 table for chrysotile. 15:17:52
Q. I can, but what I'm trying to get at 15:17:57
is, if you don't know what color you're comparing it 15:18:00
to, how do you know that? 15:18:03
A. It doesn't match any color in this 15:18:05
image. 15:18:08
Q. Okay. 15:18:08
A. It doesn't match. If you look at my 15:18:09
table. 15:18:12
Q. All right. This is page 10, this 15:18:12
is -- can you not get a sense of the Becke line with 15:18:26
the polarizer out by looking at the border between 15:18:30
the fluid and the edge of the particle? 15:18:33
A. This structure is in the 45 degree. 15:18:38
It's neither parallel or perpendicular. 15:18:44
Q. Right. 15:18:52
A. Therefore, you cannot use this image. 15:18:53
Even use Becke line to determine if it's alpha or 15:18:57

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gamma. 15:19:01
Q. In order to evaluate a Becke line, 15:19:02
does it have to be oriented in the parallel or 15:19:06
perpendicular direction? 15:19:07
A. Depending if you are assessing the 15:19:08
gamma, it's parallel. If you're assessing alpha, it 15:19:12
should be perpendicular. 15:19:18
Q. Even though this is on a 45-degree 15:19:19
angle which is appropriate for a photo, you can tell 15:19:24
the orientation of what this is by the relationship 15:19:29
of the other particles around it, right? 15:19:32
A. Mm-hmm. 15:19:34
Q. That's correct, right? You have to 15:19:35
say "yes." You just have to articulate yes or no. 15:19:38
You're saying "mm-hmm." 15:19:43
A. Your question again... 15:19:45
Q. With a particle in the 45-degree 15:19:47
angle, you can determine the orientation of it by 15:19:49
the reference to other particles in the image, 15:19:53
correct? 15:19:56
A. To determine what? 15:19:57
Q. For example, if we go back to this in 15:20:00
parallel, we can identify the structures that are 15:20:06
surrounding that fiber and then look at it in the 45 15:20:10

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and determine the orientation of it in parallel, 15:20:15
meaning the right edge, the area that's in the 15:20:22
northeast corner of this is the same as the east 15:20:28
side of the fiber in parallel? 15:20:31
A. No, because if you look, the 15:20:34
polarizer is east/west. 15:20:40
Q. Right. 15:20:42
A. Therefore, this section at a 45 15:20:43
degree, it is called gamma prime. It's between 15:20:49
alpha and gamma. 15:20:53
Q. I think you're misunderstanding what 15:20:54
I'm asking you, and I don't know how to make it 15:20:58
clear. 15:20:59
The tip of this in the northeastern 15:21:00
corner of what is page nine of Exhibit 32, the tip 15:21:04
on the northeastern side of that fiber is the same 15:21:11
location as the eastern tip of the fiber on page six 15:21:15
of the same exhibit? 15:21:20
A. Yes. They are the same fiber. 15:21:21
Q. All right. So if we go to, say, page 15:21:23
10 we are looking at that fiber, can we look at 15:21:27
where the border between the oil and the fiber are 15:21:33
blended together closest to determine the same Becke 15:21:36
line effect that you had discussed previously? 15:21:40

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A. Yes or no. When I say "yes," if the Becke line image is focused, then you examine, you compare the dispersed Becke line color against Dr. Bloss's chart, you will know this structure has a higher refract index than the liquid. 15:21:44 15:21:51 15:21:59 15:22:08 15:22:18

Q. This was another image. This is M71547-001CSM3. Do you this? 15:22:27 15:22:31

A. I saw that. 15:22:37

Q. Again, this is the Calidria sample in bentonite clay. Do you have any reason to dispute that the particles shown in this image is Calidria? 15:22:38 15:22:42 15:22:46

A. It is Calidria, yes. 15:22:50

Q. Okay. The same question then for the next photo, which is at page 18 of Exhibit 32, which is M71547-001CSM-004. Same question, given the preparation of the sample, is the particle shown here Calidria? 15:22:54 15:23:02 15:23:08 15:23:16 15:23:19

MR. HYNES: Same objection. 15:23:21

A. It is Calidria chrysotile and it's refract index looks, if it in general look like if you put a Calidria in 1.550, it should look similar to that. 15:23:28 15:23:36 15:23:42 15:23:48

Q. Page 23 of Exhibit 32 is image M71547-001CSM-005. Given the preparation of this 15:23:49 15:23:57

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sample, this being Calidria with bentonite clay, is there any doubt that the fiber in the middle of the screen is Calidria? 15:24:04 15:24:09 15:24:13

MR. HYNES: Assumes facts. I will have a recurring objection on this document. Each of the images shown have been these photographic -- or photocopied reproductions as opposed to digital reproductions of these images, sort of washed out and faded. 15:24:15 15:24:17 15:24:19 15:24:23 15:24:26 15:24:29

You can answer. 15:24:30

MR. BRALY: That is a profound speaking objection, but that's all right. 15:24:34 15:24:35

BY MR. BRALY: 15:24:38

Q. Do you remember my question? 15:24:38

A. Yes. 15:24:40

Q. Okay. 15:24:44

A. This is a chrysotile structure. 15:24:45

Q. The next image is at page 28 of Exhibit 32. This is image identified as M71547-001CSM006. Given that this sample was a mixture of Calidria and bentonite clay, do you have any reason or do you believe that this image indicated in the middle of this screen is Calidria? 15:24:55 15:24:59 15:25:05 15:25:12 15:25:17 15:25:21

MR. HYNES: Again, same objections. 15:25:24

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A. It is Calidria, which used to spike the bentonite. 15:25:27 15:25:33

Q. Yes. This is page 33 of Exhibit 32. Identified as M71547-001CSM-007. It's exactly the same question as I've been asking you. Is this particle in the middle of this screen Calidria? 15:25:34 15:25:45 15:25:52 15:25:55

MR. HYNES: Same objections. 15:25:58

A. It is. 15:25:59

Q. Another section of questions I wanted to cover with you before we finish for the day. Do you know what inner growth are? 15:26:11 15:26:14 15:26:21

A. Yes. 15:26:23

Q. What are they? 15:26:24

A. Intergrowth is a structure with two different type of related minerals. There is commonality between their composition and crystal structure. Okay. So the intergrowth can only happen between, like, an ISO morph series mineral from one end member maybe to the middle or something like that but not two different species. What I mean two different species I meant the composition and the structure. If they are drastically different crystal structure, they will never intergrowth together. 15:26:25 15:26:35 15:26:46 15:26:54 15:27:04 15:27:12 15:27:17 15:27:23 15:27:28 15:27:36 15:27:41

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Q. Thank you. Are you aware of the existence of talc and anthophyllite inter-growing together? 15:27:44 15:27:48 15:27:57

A. The talc and anthophyllite, the composition is similar. Both are magnesium silicate with hydroxyl molecule in the structure. However, their crystallographic structure is quite different. 15:27:58 15:28:05 15:28:14 15:28:25

Q. Yes. So first just for the sake of the court reporter, you said magnesium silicate with hydroxyl group, right? 15:28:27 15:28:31 15:28:33

A. Yeah. 15:28:36

Q. Okay. Makes it clear as day, right? But if you look at them under SAED, you will get different crystal patterns for them? 15:28:36 15:28:41 15:28:45

A. Yeah, right. 15:28:48

Q. They also will have different refractive indices, correct? 15:28:49 15:28:51

A. They are different. 15:28:54

Q. They are different? 15:28:55

Q. Have you reviewed Dr. Longo's analysis of intergrown species? 15:29:00 15:29:04

A. Which one. 15:29:08

Q. I will show you. 15:29:10

A. The one I believe I read when the 15:29:12

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report said one end is talc, one end is chrysotile. 15:29:18
Q. That's what I want to ask you about. 15:29:22
A. I said it is a misinterpretation of 15:29:24
the color. 15:29:28
Q. All right. Let me ask -- go ahead. 15:29:29
It sounds like you're prepared to answer questions 15:29:33
about it. Go ahead. 15:29:37
A. Because there is no clear boundary 15:29:37
interface between the so-called two structures. The 15:29:48
only thing you can see from that image is the color 15:29:54
change, but not in between there is no interface. 15:30:00
Q. Can we take a look at some of these? 15:30:09
This is -- I want you to explain this, okay? 15:30:12
A. Okay. 15:30:15
Q. This is Exhibit 33. 15:30:16
A. This is a report issued June 13th of 15:30:18
2022 entitled "PLM Analysis of Talc/Chrysotile 15:30:20
Bundle Intergrowths." 15:30:25
(Exhibit 33 PLM Analysis of Talc/Chrysotile 15:30:22
Bundle Intergrowths marked for identification.) 15:30:25
Q. I am going to go straight to the 15:30:29
gamma, okay? 15:30:34
What we see here in the first image, 15:30:36
which is at page seven of Exhibit 33 and it's image 15:30:39

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M71171-001 ISO 004. You see a fiber structure that 15:30:44
has two distinctly different levels of brightness 15:30:55
associated with each end of it. What is this in 15:31:05
your opinion? 15:31:09
A. It is distorted dispersion staining 15:31:10
color, not two type of mineral. 15:31:14
Q. Okay. 15:31:20
A. Because if you look at the crystal 15:31:21
structure between talc and chrysotile, they are 15:31:26
quite different. In that case, if this is an 15:31:31
intergrowth, they should have a very distinctive 15:31:40
boundary between the two species. They can never 15:31:44
gradually transition between these two different 15:31:52
crystal structures. So the difference show by this 15:31:57
particle is only the central stop dispersion 15:32:05
staining color which is no different from the other 15:32:11
image it shows edge, middle, a range of dispersion 15:32:16
staining color. So this is not an intergrowth at 15:32:23
all. 15:32:28
Q. Let me scroll back here through some 15:32:28
of these earlier images of this same thing. In 15:32:30
exhibit -- page four of this exhibit, which is 15:32:34
Exhibit 33, we are looking at the polarizer out 15:32:37
photo. So it appears that there is a transition in 15:32:41

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this fiber in materiality. I'm curious what you 15:32:50
think this is. 15:32:55
A. I can't see any transition. This 15:32:57
is -- I think this structure is a single structure. 15:33:01
It's not two structures with a boundary between 15:33:06
them. 15:33:11
Q. Because there is no boundary, you 15:33:11
don't believe the talc and chrysotile can 15:33:13
intergrowth? 15:33:15
A. That's right, because their crystal 15:33:16
structure is so much different. It cannot gradually 15:33:19
change from talc to chrysotile or from chrysotile to 15:33:25
talc. 15:33:31
Q. In the next photo which is page five. 15:33:32
This is the crossed polars photo. What in your 15:33:36
opinion is accounting for the change in coloration 15:33:40
from one end to the other on this one? 15:33:43
A. Thickness. 15:33:46
Q. Thickness. 15:33:47
A. You see, here is a crossed polarized 15:33:49
image. Then the color is the interference color 15:33:55
which is determined by two factors. One is the 15:34:07
difference between the gamma and the alpha or 15:34:12
between the largest versus the smallest refract 15:34:16

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index. The second factor is the thickness. Okay. 15:34:22
Q. Okay. Jumping ahead -- I'm sorry. 15:34:29
For the next image here, which is page six of 15:34:33
Exhibit 33, on the elongation slide, is thickness 15:34:38
also the determinator for why the coloration is 15:34:45
different along the length of this fiber? 15:34:49
A. Yes. 15:34:52
Q. All right. 15:34:53
A. This is a cross polarized image 15:34:55
superimposed to buy a four-wave compensator, they 15:34:59
call it a four-wave plate, whatever you call, it is 15:35:06
an accessory in the polarized light microscope. 15:35:11
Q. Complicated pieces of equipment. 15:35:19
The next page is the page we looked 15:35:24
at previously. Does thickness of this structure in 15:35:26
your opinion account for the different coloration 15:35:30
here? 15:35:33
A. No. 15:35:33
Q. No. 15:35:34
A. What account for the variation of 15:35:36
dispersion staining color here is the total 15:35:41
refraction caused by interface between liquid and 15:35:49
the particle and also between particle fiber and 15:35:55
fiber. 15:36:02

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Q. So here is where I'm struggling. The prior three photos had the same representative change in color in the prior three photos it was all due to thickness. But when we get to this one, a similar change of the same particle is now due to distortion. Do you follow why that's confusing to me?

MR. HYNES: Objection to form.

A. Yes. The reason that image is crossed polarized image, this is a plain polarized image and the optical chrysography they are showing a different aspect of the refract index relationship. Okay.

Q. Same image in alpha on the next page, which is page eight of Exhibit 33. What accounts for the difference in color here?

A. Distorted dispersion staining color due to the total refraction.

Q. Don't you find it a little bit coincidental that the distortion happens to coincide with the same locations on that fiber that you previously said were due to the thickness of it?

MR. HYNES: Same objection.

A. I don't see any problem with that.

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Q. The next image in gamma is page 12 of this exhibit. This is M71202-005CSM003. What's identified as one end talc and the other end chrysotile I'm presuming you're saying could not be without a boundary.

A. That is my opinion.

Q. All right. What accounts for the differences on the left side of this fiber versus the differences on the right side of this fiber?

A. Again, it's normal central stop dispersion color or distorted central stop dispersion staining color.

Q. Okay. So if you took this same image and did a Becke line analysis of it, you're thinking you would get a singular refractive index for the entire length of that fiber?

A. If you use Becke line to examine this structure, you will find it's like the Cargille glass. You will find where it shows a match or dis-match or there is no match at all. Okay.

MR. BRALY: Kevin, I probably have a couple hours left of this, not of this specifically, but do you think we should probably just stop for the day because he has to get out at 4?

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MR. HYNES: Sure. Let's go off the record.

(Witness excused.)

(Deposition concluded at 3:39 p.m.)

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CERTIFICATE

I, Sandra Robertson, a Notary Public and Certified Court Reporter of the State of New Jersey, do hereby certify that prior to the commencement of the examination, the witness was duly sworn by me via Zoom.

I DO FURTHER CERTIFY that the foregoing is a true and accurate transcript of the testimony as taken stenographically by and before me via Zoom at the time, place and on the date hereinbefore set forth, to the best of my ability.

I DO FURTHER CERTIFY that I am neither a relative nor employee nor attorney nor counsel of any of the parties to this action, and that I am neither a relative nor employee of such attorney or counsel, and that I am not financially interested in the action.

Notary Number: 2108796
CCR License Number: 30XI00209500
License Expiration: 6/30/26

q

z

Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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